

THE
SOUTHERN AGRICULTURIST.

FEBRUARY, 1837.

PART I.

ORIGINAL COMMUNICATIONS.

A sketch of the life of the late WILLIAM SEABROOK, planter, of Edisto Island, S. C.

The example of a life spent in usefulness and virtue, has been said to be, the best legacy, which an individual can leave his countrymen. It is under the conviction of this truth, that we have thought proper, to present to our readers, a sketch of the life of the late William Seabrook, of Edisto Island.

Though, Mr. Seabrook, in the common acceptation of the term, was no public character—and though, the action of his life was spent almost within the immediate circle of his native island, his history is one of those, which cannot be otherwise than improving to all who contemplate it for imitation. Commencing life, without the influence of wealth, and with scarcely competent means; without that early education, which his mind was so capable of attaining, Mr. Seabrook succeeded in doing, what few others have done—he lived a life, which, during a period of upwards of sixty years, stood fair and unblemished with his fellow-citizens, and died, leaving an immense fortune, which, without distressing any man, he accumulated by his own individual industry and enterprize. A volume could be profitably devoted in upholding the example of such a man; but as this is not the place, we shall only call the attention of our readers, to a summary of some of the prominent features of Mr. Seabrook's life.

The subject of this memoir was born on Edisto Island some time during the year 1773. He was the second of two sons of John Seabrook of that Island. As younger children usually are, he was very much indulged at home. His parents taking up the opinion so commonly entertained, were fearful that their son's mind would be over-fatigued by too early an application to books, and Mr. Seabrook was accordingly kept from school, receiving imperfect lessons, in reading and writing, until he was over ten years of age. Other causes of a more serious nature likewise served to impede his primary education. About the time of which we speak, the whole country was agitated with our Revolutionary struggle, and what education was imparted to our youth, was only such, as could be snatched from moments of brief repose. Such as they were, however, Mr. Seabrook properly availed himself of them. No sooner was he sent to school, than the activity and sagacity of his mind began to display themselves. His teachers and school-fellows perceived the readiness with which he could learn; and at whatever school he was placed, a rank among the first was sure to be awarded him.

The education of our schools at this period, was in most instances, particularly in the country, confined to the elements of reading writing and arithmetic. Grammar and geography, were seldom taught; and when the teacher did attempt any thing in these departments, he either failed from a want of simple elementary books, or as was most generally the case, from his own improper comprehension of those studies themselves. Limited, however, as the course of education was, Mr. Seabrook made no inconsiderable use of its offers. By the time he had reached fifteen, he could write a bold and legible hand, calculate any account in the business transactions of life, and read fluently after the style and elocution of the day. In the science of arithmetic, especially, he made a proficiency, which would be highly creditable to the best educated of this day. By an almost intuitive perception, he seemed at once to become complete master of its principles; and such a love did he afterwards acquire for this branch of science, that he has often observed, upon being complimented for his precision of character, that it was as much owing to the careful study of that science, as to any other cause.

Mr. Seabrook's father having died some years previous, he was called upon at the early age of seventeen, to take charge of his own and his mother's estate. Their conjoint number of slaves were few; and although Indigo was then planted, which yielded but little profit, he was, even at this early age, so judicious in his management, and so prudent in his economy, that he soon added very considerably to both estates. He has often told us, that at this period, the morning sun seldom or ever caught him in bed; and that he made it an undeviating rule, never to permit any work to be done, or, any duty to be discharged, by any of his subordinates, which his own eye did not supervise. With such exactness did he practice these rules, that, those who knew him, have been equally amused and surprised to find, that he could, even to the latest period of his life, enumerate every article included in his large estate, from the smallest item up to the most considerable. This exercise of memory, difficult as it might appear to others, was with Mr. Seabrook the least possible effort. Commencing at a period, when it had few objects to occupy it, he was enabled by degrees to give his mind that severe and exact discipline, which enabled it to retain the minutest transactions of life. Nor was this power of recollecting things confined alone, to his own immediate concerns. Whatever he read or heard or saw, became fixed in his mind. If a boundary was to be run out, a custom to be recollected, or a genealogy to be traced—if a point in our political or civil history was to be discussed, and the position, which this or that individual assumed during its excitement, his neighbors might consult him with the same dependence upon his accuracy, as they would a chronicle of the various transactions themselves. The stranger, who reads this character of Mr. Seabrook, would suppose him a highly educated man. In book education, the circumstances of the times, to which, we have before alluded, made him deficient: but in that education, which throws the mind back upon its own resources, and teaches it to compare, to combine, to invent and to act for itself, few men of his profession in life, were his superiors.

Mr. Seabrook was among the first who commenced the cultivation of the sea-island, or black seed cotton, in this State. In the year 1785, Josiah Tatnall had received from his father, then Surveyor-General of the Bahamas,

a handful of this seed, from which small amount, the cultivation of the plant was soon spread over Georgia. In the course of a few years, the seed was introduced upon Edisto Island. At first, the cotton made from it was of an inferior quality, and did not bring in our market over twenty-five cents per pound ; but, as most of the lands were fresh, large crops were made, and the planters seldom failed to make up in quantity, what they lost in quality. It must be remarked, however, that when the black seed cotton was introduced, a nice and proper mode of getting it out, was not completely understood. Mr. Seabrook was foremost in directing his attention to this matter. By a close supervision of all the cotton he sent to market, he established a name for himself with the buyers, and by a careful selection of seeds, he improved the staple of the article so much, as to give a twofold value to it. Others followed his example, and the cottons of Edisto Island, in a year or two, reached the top of the market. About the same time, it was accidentally discovered, that salt-mud applied to exhausted cotton lands, would invigorate them, and render the cotton finer and stronger. At first, the planters were slow to make this experiment. Some of them could see no reason why a material, which, by itself, would not produce vegetation, could, when mixed with other earth, greatly increase its productiveness. Some considered the practice more expensive than profitable, while far the greater part objected to it only on account of its being contrary to the good old usages of their fathers. Mr. Seabrook was just the man to meet such objections. Though no chemist, he reasoned from analogy, and convinced himself, that the salt which the mud contained, and which was so beneficial to animal life, could not fail of answering a like purpose when applied to that of vegetable. Mr. Seabrook, accordingly, gave the experiment a fair test ; and after having established the efficacy of mud, as a manure for cotton, he at once introduced it extensively into his system of agriculture. Others soon followed his example, and, in few years, mud became more generally used than any other manure. The beneficial results of its application in this way, soon evinced itself in the large crops which were made, and in the increased income of the planters. Mr. Seabrook was the most fortunate among these. By turning every thing to

account, and by saving most that he made, he soon accumulated a large estate. It should be remarked that, if Mr. Seabrook was industrious in increasing his fortune, he was also judicious in investing it. He used to say, that, money is only another name for labour; and that the man who would let it remain idle, was a miser, who did little benefit to himself, and still less to society. Upon this principle, Mr. Seabrook never suffered, as some planters do, his annual income to remain inactive in his coffers. He either expended it, as soon as made, in increasing his own property; or by making safe loans of it, he aided others while he benefited himself. Let not this last remark carry the imputation, that Mr. Seabrook was a money-lender, as is commonly understood by that term. His, was a more generous purpose than private emolument. Whenever he did oblige others, by a loan from his superabundant estate, he did so, principally, that they might be personally advanced. As an evidence of this, he required, in such instances, little more than the individual's own industry as security for the obligation. By generosity like this, he has left behind him several whose fortunes he had been, in no small degree, instrumental in forming. To the enterprising young man, he was always ready to afford assistance, when required. To such, he was considered a father; and even for the most gay and frivolous, he was more anxious to make allowances, than to condemn them. Bearing this character, his advice was always taken in good part, which induced the young, generally, to select him as their guardian, whenever occasion required. This arduous duty he discharged, in a manner which showed, that he properly felt its responsibility.

At an early age, Mr. Seabrook embraced religion, as the only safe guide for his life. He had been remarkable, when a boy, for his moral habits; but he now discovered, that any rule, which depended upon mere human direction, was unsafe: with this view he embraced the Christian religion, and became a member of the Presbyterian Church, of Edisto Island.

Though he loved his own Church, and did all he could for its advancement, he was nothing of a sectarian. He viewed Christianity, as a doctrine which the great Master of souls intended for all men alike: and, while he allowed the right which each sect had, to believe his own mode

the best, he did not, on that account, take the bigoted view, that, because his neighbour differed from him, he was, consequently, wrong. His, was a creed, which summed up all in the requirement of "loving God above all things, and our neighbor as ourselves." It was by these fundamental principles that he was governed; and it was by making them the rule of his life, that he rendered himself "beloved while living, and lamented when dead."

If the character we have given of Mr. Seabrook, presents him as highly exemplary in his private life, he was no less so in his public relations. Apart from the faithful manner in which he represented his parish in the Legislature of our State, he evinced his public services in other respects. It may be safely affirmed, that during his active life, no public undertaking was ever conceived or accomplished, on his native Island, without his having a immediate or immediate connection with it. Upon such occasions, he was always looked to as the moving spirit; and such was the implicit confidence placed in his judgment, that his approval or disapproval, of a measure of general concern, was sufficient for its completion or discontinuance. In a community, like that of Edisto Island, where each individual is so perfectly independent of the other, this bespoke for Mr. Seabrook a high degree of popularity. Whatever credit, however, he deserves for having attained such a popularity, a larger amount belongs to him for the public-spirited, and at the same time, modest way, in which he exercised its influence. Conscious that, when a man lends himself to the public, he must become its devoted servant, whenever he consented to undertake public business, he left self at home, and gave all his efforts to the general good. If, in so doing, he sometimes seemed to benefit himself, it was, because a really public benefit must always throw back its good results upon the originat r. The establishment of a line of steamboats, between Savannah and Charleston, and the intermediate Islands, may be mentioned as an instance of this nature. Before the establishment of this line of boats, the planters got their produce to market with very little certainty or despatch. They were obliged, in most cases, to send it in their own boats,—a mode of conveyance which was frequently attended with four times the expense of the present steamboat conveyance.

They too, whenever they visited the city, either on business or pleasure, were compelled to take their own boats and hands, a circumstance which frequently induced them to forego that intercourse with their friends of the city, which has so evident a tendency to destroy every thing like selfish and dissocial habits. When Mr. Seabrook first projected a line of steamboats, to trade as we have mentioned, most persons pronounced it an impracticable scheme. Almost every one predicted, there could not be sufficient patronage to support it. We recollect Mr. Seabrook's emphatic reply upon one occasion, when it was stated that his plan would fail. "You say, sir, they will not have patronage! Now, sir, I will make patronage. You tell me, there will not be sufficient travelling: I will make people travel. Where you visited the city once, before, I will make you do so twenty times. I will bring you the papers of the city regularly. I shall let you know, by them, what is doing in the city—at what prices you can sell your produce; you shall go and see it sold yourself. I shall so regulate things, sir, that you may make an appointment to be in the city on a given day, and, sir, you shall be there, almost without the consciousness of being from your fire-side. By establishing a boat, sir, I will do all this; and I will not have one, fairly established, before you will complain that you have not a half-dozen." As we have already stated, we heard Mr. Seabrook use this language ourselves, and we have, ourselves, lived to see, in the course of three years, all that he has said verified.

Mr. Seabrook's death occurred during the month of September, 1836. For a year or two previous, he had been violently distressed with a cough, of a pulmonary nature. Added to this, and perhaps the effect of his general illness, he became deprived of his eye-sight about a year previous to his dissolution. To one whose life had been so active, the deprivation of his sight, was calculated very much to depress his spirits. It was while laboring under such a depression, that he requested an operation to be performed upon his eye. His surgeon told him the exact situation of his case. He presented to him his advanced age, his delicate health, and the severity of the operation; but at the same time held out to him the hope, that his sight might be restored. Mr. Seabrook had made up his mind to encounter the worst.

His sight, by the removal of a cataract over the eye, was restored ; but, as his surgeon had anticipated, his infirm state of health, caused it to return shortly afterwards. In a month or two following, Mr. Seabrook felt that his dissolution was fast approaching. To one, who had always kept himself in readiness, the summons of death was not unexpected. He was fully prepared for the event. Those who were witnesses at his death-bed, have said, that amid his severest suffering, he fully illustrated the saying of the Wise man, that, "the way of righteousness is life ; and in the pathway thereof there is *no death.*"

In summing up the character of Mr. Seabrook, it may be truly said of him, that he was an honest man, and a highly useful and public-spirited citizen. He commenced life with small means ; and, by dint of industry and skill, he died leaving an estate worth near a million of dollars. His liberality was proportioned to his means. No one ever met him in need, without receiving relief ; nor did he wait for the distressed to seek him out. It was his habit to visit the poor in their retirement ; and when no one saw him but the recipient himself, to administer to his wants. What rendered such acts doubly generous was the fact, that, Mr. Seabrook never mentioned them, except when forced by circumstances to do so. To public institutions, having for their object the advancement of education and religion, his donations were munificent. Besides many liberal instances of this kind, during his life time, he left, at his death, ten thousand dollars, to be expended towards establishing a school, in the parish of his nativity.

Mr. Seabrook's style of living corresponded with his fortune. Without ostentation, he had every thing elegant about him ; and he may be considered the first who introduced upon Edisto Island, a taste for a neat and appropriate style of rural architecture. Sociable in his habits, he was always happy in entertaining the visiter, while all who remained under his roof were made to feel as if they were at home. Without pretensions to learning, his conversation was always interesting and instructive ; and, with none of the formality of politeness, his manners were bland and amiable. For many years, he was an elder of the Presbyterian Church of his island. He lived as a Christian, and, after a calm review of what he had been, and professed, he died in the most steadfast

hopes of enjoying the rewards his Great Master had promised. Besides a widow and several children, Mr. Seabrook has left behind him a large circle of immediate relatives and friends to lament his loss. Their's, however, is a happy consolation, "for THE MEMORY OF A GOOD MAN DOES NOT DIE, BUT LIVES, AS AN INHERITANCE TO HIS CHILDREN'S CHILDREN."

Analysis of Soil from the Sugar Plantation of Mr. JOHN PENNY, of Willow-Island, near Donaldsonville, Louisiana; by CHARLES UPHAM SHEPARD, M. D., Professor of Chemistry, in the Medical College of the State of South-Carolina.

This soil was forwarded to me two years since by Mr. PENNY, with the request, that as I had examined one important variety of the alluvial of the region,* I would also devote some attention to another, still more abundant with them, and which, from its unctuous qualities is commonly known in Louisiana as the *terre grasse*.

The sample has been carefully preserved in a dry situation; and until broken down for analysis, formed a solid cake, nearly one foot square, having the shape of the box in which it was packed. In colour, it is ash-grey; having frequent, but almost imperceptible streaks and stains of peroxide of iron. It is but slightly permeated by undecomposed vegetable fibres. It breaks with difficulty, being quite compact; and is cut by the knife with nearly the same resistance as chalk. When moistened by the breath, it emits a faint argillaceous odour.

A mass of it immersed in water, absorbs this fluid with a hissing noise; and in five or ten minutes crumbles down into angular masses or balls, which require much stirring before a homogeneous paste is formed. To the naked eye, it is almost impalpable; but under the microscope, fine transparent siliceous grains become apparent. Its specific gravity is 2.04.

I shall describe the processes to which the soil under consideration was subjected, without carrying through the account the enumeration of the weights lost and obtained in the two analyses made; remarking only, that the quantities operated upon were, in one instance 10.00 grammes, and in the other 8.83 grammes.

* See vol. vii. p. 622, of this Journal.

A. The soil was reduced to a fine powder, and heated to 300° F., with constant stirring in a platina capsule for half an hour, to ascertain the water of absorption.

B. The same portion (A) was then ignited in a platina crucible, for three quarters of an hour and weighed, to determine the quantity of vegetable and animal matter present.

C. The ignited soil (B) was then digested, with repeated stirrings, in a porcelain basin, with twice its weight of hydrochloric acid (often diluted with water) for half a day, on a sand-bath. The contents of the basin were then thrown upon a filter; and the insoluble matter well washed with hot distilled water, so long as any acid taste was perceptible in the washings. The matter was then ignited and weighed: its colour was white, and its appearance that of pure silicic acid (silica.)

D. The ignited siliceous residuum (C) was mingled with powdered charcoal, and subjected in a crucible, to a furnace heat for one hour. Water was affused, and the whole thrown on the filter. The clear solution, after exposure to the air for forty-eight hours, exhibited, on agitation, a faint cloudiness.

E. The hydrochloric solution (C) was treated with a solution of bicarbonate of soda, for the purpose of throwing down the peroxide of iron, and alumina; and the precipitate was separated by the filter. After edulcoration, it was boiled in a solution of potassa. The peroxide of iron thus cleared of alumina, was washed, heated, and weighed.

F. The alkaline solution (E) was treated to hydrochlorate of ammonia, and boiled; whereby the alumina was thrown down: after heating to whiteness, it was weighed while still warm.

G. To the solution (E), from which the iron and alumina had been removed, oxalate of ammonia was added; and after twelve hours, the oxalate of lime separated by the filter, and dried at a low, red heat.

H. In another analysis, after the removal of the lime from an acid solution by bicarbonate of potassa, the clear liquid was boiled for the precipitation of the carbonate of magnesia. It was washed, and dried at a heat below redness.

I. Three or four ounces of the soil were boiled in a pint of distilled water, for half an hour, and the clear liquid separated by the filter. The solution gave no

precipitate with chloride of barium, or chloride of platina.* With nitrate of silver it became much troubled, as likewise with oxalate of ammonia.

K. When the aqueous solution was evaporated to dryness, and the residuum heated to redness in a platina capsule over an alcoholic lamp, a distinct vegeto-animal odour was emitted. A portion of the residuum was projected on a red hot coal without occasioning a defloration. A portion of the residuum after standing twenty-four hours, suffered a sensible deliquescence.

RESULT.

| | |
|--|---------|
| Water of absorption, - - - - - | 7.500 |
| Animal and vegetable matter, - - - - - | 5.100 |
| Insoluble matter, nearly pure silica, - - - - - | 68.750 |
| Alumina, $\frac{12.0 + 9.08}{2}$ - - - - - | 10.540 |
| Peroxide of iron, - - - - - | 2.500 |
| Carbonate of lime, $\frac{2.14 + 1.91}{2}$ - - - - - | 2.025 |
| Carbonate of magnesia, $\frac{1.16 + 0.66}{2}$ - - - - - | 0.905 |
| Sulphate of lime, - - - - - | a trace |
| Chloride of calcium, - - - - - | ditto |
| | 97.320 |

Charleston, S. C., January 23, 1837.

The Varieties of Wine.

Perhaps, Mr. Editor, an article on the different kinds of Wine, may not be incompatible with the design of the Southern Agriculturist. With this persuasion, I send you for publication the following communication. It has been entirely digested, from an article on the same subject, in McCulloch's Dictionary of Commerce. Its reading will repay every one who, like myself, is

A LOVER OF GOOD WINE.

WINE (Ger. *Wein*; Fr. *Vin*; It. and Sp. *Vino*; Port. *Vinho*; Rus. *Wino*; *winoe-gradnoe winoe*; Lat. *Vinum*; Gr. *Oivos*; Arab. *Khumr*;) the fermented juice of the grape, or berries of the vine (*vitis vinifera*.)

*After many days' standing, the solution, tested with chloride of platina, afforded a feeble precipitate. It is probable that the potassa is present in the soil, in the condition of nitrate of potassa.

The vine is indigenous to Persia and the Levant ; but it is now found in most temperate regions. The limits within which it is cultivated in the northern hemisphere of the Old World vary from about 15° to 48° and 52° ; but in North America, it is not cultivated farther North than 38° or 40° . It is rarely grown at a greater altitude than 3,000 feet. From Asia the vine was introduced into Greece, and thence into Italy. The Phoeceans, who founded Marseilles, carried the vine to the south of France ; but it is doubtful whether it was introduced into Burgundy till the age of the Antonines. The species of *Vitis* indigenous to North America is very different from the *Vitis vinifera*. In favourable seasons, the vine ripens in the open air in England ; and in the eleventh and twelfth centuries, considerable quantities of inferior wine were made from native grapes. Vineyards are now, however, unknown in this country ; but the grapes raised in hot-houses, and used in desserts, are excellent.

The vine grows in every sort of soil ; but that which is light and gravelly seems best suited for the production of fine wines. It succeeds extremely well in volcanic countries. The best wines of Italy are produced in the neighbourhood of Vesuvius : the famous Tokay wine is also made in a volcanic district, as are several sorts of the best French wines ; many parts of the south of France bearing evident marks of extinct volcanoes. Hermitage is grown among the *débris* of granite rocks. The most favourable situation for a vineyard is upon a rising ground or hill facing the south-east, and the situation should not be too confined.

Species of Wine.—There are many varieties of vines ; and this circumstance, combined with the differences of soil, climate, mode of preparation, &c., occasions an extreme variety in the species of wine. But even between places immediately contiguous to each other, and where a cursory observer would hardly remark any difference, the qualities of the wines, though produced by the same species of grape, and treated in the same way, are often very different. A great deal evidently depends upon the aspect of the vineyard ; and it is probable that a good deal depends on peculiarities of soil. But whatever may be the cause, it is certain that there are wines raised in a few limited districts, such as Tokay, Johannisberger, Constantia, the best Burgundy, Champagne, claret, &c.,

that no art or care has hitherto succeeded in producing of equal goodness in other places.

ANCIENT WINES.—The wines of Lesbos and Chios among the Greeks, and the Falernian and Cecuban among the Romans, have acquired an immortality of renown. Great uncertainty, however, prevails, as to the nature of these wines. Dr. Henderson thinks that the most celebrated of them all, the Falernian, approached, in its most essential characters, near to Madeira. In preparing their wines, the ancients often inspissated them till they became of the consistence of honey, or even thicker. These were diluted with water previously to their being drunk ; and, indeed, the habit of mixing wine with water seems to have prevailed much more in antiquity than in modern times.

MODERN WINES.—The principal wines made use of in this country are port, sherry, claret, Champagne, Madeira, hock, Marsala, Cape, &c.

Port,—the wine most commonly used in England,—is produced in the province of Upper Douro, in Portugal ; and is shipped at Oporto, whence its name. When it arrives in this country, it is of a dark purple, or inky colour ; has a full, rough body, with an astringent bitter-sweet taste, and a strong flavour and odour of brandy. After it has remained some years longer in the wood, the sweetness, roughness, and astringency of the flavour abate ; but it is only after it has been kept 10 or 15 years in bottle, that the odour of the brandy is completely subdued, and the genuine aroma of the wine developed. When kept to too great an age, it becomes tawny, and loses its peculiar flavour. During the process of melioration, a considerable portion of the extractive and colouring matter is precipitated on the sides of the vessel, in the form of crust. In some wines this change occurs much earlier than in others.

A large quantity of brandy is always mixed with the wine shipped from Oporto for England. Genuine unmixed port wine is very rarely met with in this country. We have been so long accustomed to the compounded article, that, were it possible to procure it unmixed, it is doubtful whether it would be at all suited to our taste.

Sherry is of a deep amber colour ; when good, it has a fine aromatic odour ; its taste is warm, with some degree of the agreeable bitterness of the peach kernel. When

new, it tastes harsh and fiery ; it is mellowed by being allowed to remain 4 or 5 years or longer in the wood ; but it does not attain to its full flavour and perfection until it is kept for 15 or 20 years. It is a very strong wine, containing about 19 per cent. of alcohol. It is principally produced in the vicinity of Xeres, not far from Cadiz, in Spain. It is very extensively used in this country as a dinner wine. Dry sherry, or *amontillado*, when genuine and old, fetches a very high price. Perhaps no wine is so much adulterated as sherry.

Claret.—the term generally used in England to designate the red wines, the produce of the Bordelais. Of these, Lafitte, Latour, Chateau-Margaux, and Haut-Brion, are so generally esteemed, that they always sell from 20 to 25 per cent. higher than any others of the province. The first mentioned is the most choice and delicate, and is characterized by its silky softness on the palate, and its charming perfume, which partakes of the nature of the violet and the raspberry. The Latour has a fuller body, and at the same time a considerable aroma, but wants the softness of the Lafitte. The Chateau-Margaux, on the other hand, is lighter, and possesses all the delicate qualities of the Lafitte, except that it has not quite so high a flavour. The Haut-Brion, again, has more spirit and body than any of the preceding, but is rough when new, and requires to be kept 6 or 7 years in the wood ; while the others become fit for bottling in much less time.

Among the second-rate wines, that of Rozan, in the parish of St. Margaux, approaches in some respects to the growth of Chateau-Margaux ; while that of Gorce, in the same territory, is little inferior to the Latour ; and the vineyards of Leoville, Larose, Bran-mouton, and Pichon-Longueville, in the canton of Pauillac, afford light wines of good flavour, which, in favourable years, have much of the excellence of the finer growths. In the Entre-deux-Mers, the wines of Canon and St. Emilion, in the vicinity of Libourue, are deemed the best, being of a full body and very durable. When new, these wines are always harsh and astringent ; but they acquire an agreeable softness, and are characterized by a peculiar flavour, which has been not unaptly compared to the smell of burning wax. The aroma of the first growths is seldom fully developed till after they have been kept 8 or 9 years :

but the secondary qualities come to perfection a year or two sooner. The colour often grows darker as the wine advances in age, in consequence of the deposition of a portion of its tartar; but, when well made, and thoroughly fined, it seldom deposits any crust.

There is generally a very good supply of claret in bond in the docks in London. Its price varies from about 15*l.* per hogshead for the inferior, to 50*l.* and 55*l.* per hhd. for the superior growths. What are called cargo, or shipping clarets may be bought, at from 5*l.* to 10*l.* per hogshead. The finest case claret sells in bond at about 50*s.* per dozen; but parcels of very well flavoured wine may be bought at 25*s.*

Champagne,—so called from the province of France of which it is the produce,—is one of the most deservedly esteemed of the French wines. The wines of Champagne are divided into the two grand classes of white and red wines; and each of these again into still and sparkling; but there is a great variety in the flavour of the produce of different vineyards. Sillery is universally allowed to be the best of the still wines. It is dry, of a light amber colour, has a considerable body, and a charming aroma. “Le Corps,” (says M. Jullien,) “le spiritueux, le charmant bouquet, et les vertus toniques dont il est pourvu, lui assurent la priorité sur tous les autres.”—(*Topographie de tous les Vignobles*, p. 30.) Dr. Henderson agrees with M. Jullien, in considering it as one of the wholesomest of the Champagne wines. The sparkling wines are, however, the most popular, at least in this country. Of these, the wine of Ay, 5 leagues south from Rheims, is, perhaps the best. It is lighter and sweeter than sillery, and has an excellent flavour and aroma. That which merely creams on the surface, (*demi-mousseux*) is preferred to the full frothing wine (*grand-mousseux*). Being bright, clear, and sparkling, it is as pleasing to the eye as it is grateful to the palate.

“Cernis mican'i concolor ut vitro
Latex in auras, gemmeus aspici,
Scintillet exultim; utqne dulces
Naribus illecebras propinat

“Succi latentis proditor halitus!
Ut spuma motu lactea turbido
Crystallinum lætis referre
Mox oculis properet nitorem.”

Hautvilliers, about four leagues from Rheims and one from Epernay, used formerly to produce wine that equalled, and sometimes surpassed, the wine of Ay. But it is no longer cultivated with the same care; so that, though still very good, it now only ranks in the 2d class.

The best of the red wines of Champagne are those of Verzy, Verzenay, Mailly, Bouzy, and St. Basle. "Ils ont une belle couleur, du corps, du spiritueux, et surtout, beaucoup de finesse, de sève, et de bouquet."—(Jullien, p. 27.) The Clos St. Thierry, in the vicinity of Rheims, produces wine which, according to M. Jullien, unites the colour and the aroma of Burgundy to the lightness of Champagne.

The province of Champagne produces altogether about 1,100,000 hectolitres of wine; of which, however, the finest growths make but a small part. The principal trade in wine is carried on at Rheims, Avise, and Epernay. The vaults in which the vintages are stored, are excavated in a rock of calcareous tufa to the depth of 30 or 40 feet. Those of M. Moet, at Epernay, are the most extensive, and few travellers pass through the place without going to see them. The briskest wines (*grands-moueseux*) keep the worst.—(Jullien, p. 34.)

Burgundy.—The best wines of this province, though not so popular in England as those of Champagne, enjoy the highest reputation. "In richness of flavour and perfume, and all the more delicate qualities of the juice of the grape, they unquestionably rank as the first in the world; and it was not without reason that the Dukes of Burgundy, in former times, were designated as the *princes des bons vins.*"—(Henderson, p. 161.)

Romané-Conti, Chambertin, the Clos Vougeot, and Richebourg, are the most celebrated of the red wines of Burgundy. Chambertin was the favourite wine of Louis XIV. and of Napoleon. It is the produce of a vineyard of that name, situated 7 miles to the south of Dijon, and furnishing each year from 130 to 150 puncheons, from an extent of about 65 acres. It has a fuller body and colour, and greater durability, than the Romané, with an aroma nearly as fragrant.

The white wines of Burgundy are less numerous, and consequently, less generally known, than the others: but they maintain the highest rank among French white wines, and are not inferior to the red either in aroma or flavour.

The entire annual produce of wine in Burgundy and Beaujolais, may at present be estimated, at an average, at nearly 3,000,000 hectolitres, of which about 750,000 suffice for the consumption of the inhabitants. Since the Revolution, the cultivation of the vine has been greatly extended in the province. Many of the new vineyards having necessarily been planted in comparatively unfavourable situations, a notion has been gaining ground that the wines of Burgundy were degenerating. This, however, is not the case. On the contrary, the quantity of *bons crus*, instead of being diminished, has increased considerably ; though, as the supply of inferior wines has increased in a still greater degree, the fine wines bear a less proportion to the whole than they did previously to the Revolution.—(*Jullien*, p. 90.)

The principal trade in Burgundy is carried on at Dijon, Gevrey, Châlons-sur-Saône, &c.

Besides the above, France has a great variety of other excellent wines. Hermitage, Sauterne, St. Péry, &c., are well known in England ; and deservedly enjoy, particularly the first, a high degree of reputation.

Dispute as to the comparative merit of Champagne and Burgundy.—The question, whether the wines of Champagne or of Burgundy were entitled to the preference, was agitated during the reign of Louis XIV. with extraordinary keenness. The celebrated Charles Coffin, rector of the University of Beauvais, published, during this controversy, the classical ode, partly quoted above, in which Champagne is eulogised, and its superiority vindicated, with a spirit, vivacity and delicacy, worthy of the theme. The citizens of Rheims were not ungrateful to the poet ; but liberally rewarded him with an appropriate and munificent donation of the wine he had so happily panegyrized. Gréneau wrote an ode in praise of Burgundy ; but, unlike its subject, it was flat and insipid, and failed to procure any recompence to its author. The different pieces in this amusing controversy were collected and published in octavo, at Paris, in 1712. Erasmus attributes the restoration of his health to his having drunk liberally of Burgundy ; and has eulogised it in the most extravagant terms. An epistle of his, quoted by Le Grand d'Aussy, shows that Falstaff and he could have spent an evening together less disagreeably than might have been supposed.

Madeira,—so called from the island of that name,—is a wine that has long been in extensive use in this and other countries. Plants of the vine were conveyed from Crete to Madeira in 1421, and have succeeded extremely well. There is a considerable difference in the flavour and other qualities of the wines of Madeira: the best are produced on the South side of the Island. Though naturally strong, they receive an addition of brandy when racked from the vessels in which they have been fermented, and another portion is thrown in previously to their exportation. This is said to be required to sustain the wine in the high temperature to which it is subjected in its passage to and from India and China, to which large quantities of it are sent; it being found that it is mellowed, and its flavour materially improved by the voyage. It does not, however, necessarily follow that the wines which have made the longest voyages are always the best. Much must obviously depend on the original quality of the wine; and many of the parcels selected to be sent to India are so inferior, that the wine, when brought to London, does not rank so high as that which has been imported direct. But when the parcel sent out has been well chosen, it is very much matured and improved by the voyage; and it not only fetches a higher price, but is in all respects superior to the direct importations. Most of the adventitious spirit is dissipated in the course of the Indian voyage.

Madeira wines may be kept for a very long period. "Like the ancient vintages of the Surrentine hills, they are truly *firmissima vina*, retaining their qualities unimpaired in both extremes of climate, suffering no decay, and constantly improving as they advance in age. Indeed, they cannot be pronounced in condition until they have been kept for 10 years in the wood, and afterwards allowed to mellow nearly twice that time in bottle: and even then, they will hardly have reached the utmost perfection of which they are susceptible. When of good quality, and matured as above described, they lose all their original harshness, and acquire that agreeable pungency, that bitter sweetishness, which was so highly prized in the choicest wines of antiquity; uniting great strength and richness of flavour with an exceedingly fragrant and diffusible aroma. The nutty taste, which is often very marked, is not communicated, as some have

imagined, by means of bitter almonds, but is inherent in the wine."—(*Henderson*, p. 253.)

The wines of Madeira have latterly fallen into disrepute in England. The growth of the island is very limited—not exceeding 20,000 pipes, of which a considerable quantity goes to the West Indies and America. Hence, when Madeira was a fashionable wine in England, every sort of deception was practised with respect to it, and large quantities of spurious trash were disposed of for the genuine vintage of the Island. This naturally brought the wine into discredit; so that sherry has been for several years, the fashionable white wine. It is difficult, however, to imagine that adulteration was ever practised to a greater extent upon Madeira than it is now practised upon sherry. It is not, therefore, improbable, that a reaction will take place in favour of Madeira. The quantity entered for home consumption in 1827 amounted to 308,295 gallons, whereas the quantity entered for home consumption in 1833 only amounted to 161,042 gallons.

Malmsey, a very rich luscious species of the Madeira, is made from grapes grown on rocky grounds exposed to the full influence of the sun's rays, and allowed to remain on the vine till they are over-ripe.

The trade in Madeira wine is carried on at Funchal, the capital of the island, in lat. 32 deg. 37 min. N., lon. 17 deg. 6 min. W.

Teneriffe Wine,—so called from the island of that name,—resembles Madeira, and is not unfrequently substituted in its place; but it wants the full body and rich flavour of the best growths of Madeira.

German Wines.—The wines of Germany imported into England are principally produced on the banks of the Rhine and the Moselle. The Rhine wines constitute a distinct order by themselves. They are drier than the French white wines, and are characterized by a delicate flavour and aroma, called in the country *gäre*, which is quite peculiar to them, and of which it would, therefore, be in vain to attempt the description. A notion prevails, that they are naturally acid; and the inferior kinds, no doubt, are so; but this is not the constant character of the Rhine wines, which in good years have no perceptible acidity to the taste, at least not more than is common to them with the growths of warmer regions. Their chief

distinction is their extreme durability. The wines made in warm dry years are always in great demand, and fetch very high prices.

The Johannisberger stands at the head of the Rhine wines. It has a very choice flavour and perfume, and is characterized by an almost total want of acidity. The vineyard is the property of Prince Metternich. The Steinberger ranks next to the Johannisberger. It is the strongest of all the Rhenish wines, and in favourable years has much flavour and delicacy.

The produce of certain vineyards on the banks of the Moselle is of superior quality. The better sorts are clear and dry, with a light pleasant flavour and high aroma; but they sometimes contract a slaty taste from the strata on which they grow. They arrive at maturity in five or six years; though, when made in a favourable season, they will keep twice that time, without experiencing any deterioration.—(Henderson, p. 226.)

Tokay,—so called from a town in Hungary near which it is produced,—is but little known in England. It is luscious, possessing at the same time a high degree of flavour and aroma. It is scarce and dear; and very apt to be counterfeited.

Marsala.—The Sicilian white wine called Marsala, from the town (the ancient Lilybœum) whence it is shipped, and near which it is made, is now pretty largely consumed in England; the entries for home consumption having increased from 79,686 gallons, in 1823, to 312,993 in 1833; an extraordinary increase, particularly when it is considered that during the same period the consumption of most sorts of wine has been nearly stationary. Marsala is a dry wine; the best qualities closely resembling the lighter sorts of Madeira; but the increasing demand for it seems to be owing as much to its cheapness as to any peculiarity of quality. It is, however, an agreeable dinner wine. Marsala has been brought to its present state of perfection and repute by the care and exertions of two Englishmen, the Messrs. Woodhouse, established in Sicily, who have an extensive factory in the neighbourhood of Marsala. The wine is shipped in large quantities for America; whence a considerable quantity is again conveyed to the West Indies, where it is not unfrequently disposed of as real Madeira.

With the exception of Marsala, very little wine, either of Sicily or Italy is imported into England. The wines of those countries are, indeed, without, perhaps, a single exception, very inferior to those of France. The natives bestow no care upon the culture of the vine ; and their ignorance, obstinacy, and want of skill in the preparation of wine, are said to be almost incredible. In some districts, the art is, no doubt, better understood than in others ; but had the Falernian, Cecuban, and other famous ancient wines not been incomparably better than the best of those that are now produced, they never would have elicited the glowing panegyrics of Horace.

Wines of Greece and Cyprus.—The soil in most parts of Greece, and of the Grecian Islands is admirably fitted for the growth of the vine ; and, in antiquity, they produced some of the choicest wines. But the rapacity of the Turks, and the insecurity of person and property that has always prevailed under their miserable government, has effectually prevented the careful cultivation of the vine ; and has occasioned, in many places, its total abandonment. It may, however, be fairly presumed, now that Greece has emancipated herself from the iron yoke of her oppressors, that the culture of the vine will attract some portion of that attention to which it is justly entitled ; and that, at no distant period, wine will form an important article of export from Greece.

Cape Wines.—Of the remaining wines imported into England, those of the Cape of Good Hope form the largest proportion ; the quantity annually entered for home consumption being about 540,000 Imperial gallons. The famous constantia wine is the produce of two contiguous farms of that name, at the base of Table Mountain, between eight and nine miles from Cape Town. The wine is very rich and luscious ; though, according to Dr. Henderson, it yields, in point of flavour and aroma, to the muscadine wines of Languedoc and Roussillon. But, with this exception, most of the Cape wines brought to England have an earthy disagreeable taste, are often acid, want flavour and aroma, and are, in fact, altogether execrable. And yet this vile trash, being the produce of a British possession, enjoys peculiar advantages in our markets ; for while the duty on Cape wine is only 2s. 9d. a gallon, that on all other wines is 5s. 6d. The consequences of this unjust preference are doubly mischievous :

in the first place, it forces the importation of an article, of which little is directly consumed, but which is extensively employed as a convenient menstruum for adulterating and degrading sherry, Madeira, and other good wines ; and, in the second place, it prevents the improvement of the wine ; for, while the Legislature thinks fit to give a bounty on the importation of so inferior an article is it to be supposed that the colonists should exert themselves to produce any thing better ? It is not easy to imagine a more preposterous and absurd regulation. The act enforcing it ought to be entitled, an act for the adulteration of wines in Great Britain, and for encouraging the growth of bad wine in the Cape colony !

The Raising of Ducks.

Duck Pond, S. C., Jan. 29, 1837.

Mr. Editor,—I love ducks,—good fat ducks, I mean. I have no doubt you doth so likewise. I feel interested, that all should like them ; for when all like them, it is a very likely thing, that, all may take a little more than usual pains to learn how to raise them.

We know by woful experience, how meager and beggarly our markets appear during the summer months. Beef can scarcely be got ; and when it is got, it is of such inferior quality, that it is not worth cooking. What are we to do, to supply its place, unless we resort to poultry. Last year, poultry could hardly be purchased in our markets. The reason, why this was the case, was, perhaps, from the fact, that, most persons, not knowing the proper art of raising poultry, have given them up as unprofitable.

I have run away from my subject indeed. I was, I believe, speaking of ducks. Well, Sir, of the raising of ducks. These birds being aquatic in their habits, most persons suppose they ought to give the young ones a great deal of water. The consequence is, they soon take colds, become droopy, and die. This mode should be avoided. Ducks, when first hatched, are always inclined to fever, from their pinion-wings coming out so soon. This acts upon them as teething does on children. The young ducks should, consequently, be kept from every thing, which may have a tendency to create cold in them. To

prevent this, therefore, I always allow my young ducks as little water as possible. In fact, they should only have enough to allay their thirst, and should, on no account, be permitted to play in the water. If the person lives near the city, liver and lites should be procured; and these should be boiled, and chopped up fine, and given to the young ducks. Or, if fish, crabs, oysters, or clams, can be procured, these should be given. In case none of these can be got, all the victuals should be boiled before feeding. Boiled potatoes mixed with homonie are also excellent. Half of the ducks which are lost, are, because raw food is given them. To sum up all in a word—if you wish to raise almost every duck that is hatched, give them little water, and feed them on no food which is not boiled. By observing this plan, I raise for market, and for my own table, between two and three hundred ducks every year.

I remain, your friend and well-wisher,

DUCKEY DIDDLE.

Experiments in raising Early Potatoes from Sprouts.

Mr. Editor,—A few years ago, I read an article recommending the plan of planting out potatoes in hot-beds, and then transplanting from the sprouts, in order to procure early potatoes. I have, for three years back, tried the experiment, and have succeeded, to my fullest expectation. As it may be useful to your readers, I shall tell you how I managed.

I selected a high piece of ground, about the sixteenth part of an acre in extent. This I highly manured with dung from the cow-pen. (Stable manure would be better, in as much as it is warmer.) I mixed the manure well with the earth, and about the middle of February planted the potatoes in drills, about three feet apart. The bed must be now covered with pine trash, or any other material that will protect it from the weather. In two or three weeks the seeds will begin to sprout, and by the latter end of March, or the middle of April, they will be full forward enough to set out as slips. You may go on, cutting and setting out the slips, and they will spring up almost as fast as cut; so that, the small amount

of land planted as above for sprouts, will give you slips enough for five or six acres.

The advantages of this mode of culture are these : your root potatoes will be earlier, and will be much more productive ; for the sweet potato always grows better from the cuttings of the vine than from the potato itself.

If any planter doubts the practicability of my plan, only let him try a small bed in his garden : it will cost him little trouble, and will give him early potatoes to eat.

CHARLESTON NECK.

[We think the experiment of "Charleston Neck," worth the trial. The source from whence the information comes, is such, as makes us feel the utmost confidence in the correctness of the results mentioned. In corroboration of them, we have just read a letter from the pen of our valued correspondent, N. Herbemont, of Columbia, South-Carolina, to the Editor of the Farmer's Register. In treating of the sweet potato, he says, "I am glad to have it in my power to strengthen the authority of Mr. Carter, as regards his experiment of planting small potato roots, for the purpose of producing sprouts to be transplanted in due time, into the beds prepared for them. This is a practice much followed in this State, and many persons, I among the rest, think these sprouts produce much the best potatoes for the table. It is a method well suited to those countries where the summer is too short to produce the potato in perfection, by any other. The usual way, is to prepare a nursery bed of small dimensions, in a warm and sheltered situation, by manuring it highly with stable manure ; make drills in this bed, at very short distances from each other, from five to ten inches, and in these drills put small potato roots, so close as to touch, and cover them lightly. This should be done earlier than the usual season for planting the crop ; and for fear of frost, the seed may be covered with straw, teaves, or some such matters. A bed about four feet wide, and fifty or sixty feet long, will furnish sprouts enough to plant at least an acre of ground. It is necessary to have the beds ready to plant the sprouts, so as to take advantage of every shower of rain to transplant whatever sprouts are large enough, that is a few inches high. The nursery bed will soon again be covered with a new set, to plant at the next suitable weather. Potatoes produced in this manner are generally smooth and well formed, and the crop very abundant. Every facility afforded, for the extended cultivation of this invaluable root, is undoubtedly a great advantage ; for it is nutritive and wholesome in a high degree. Many planters in this State feed their negroes for several months exclusively on sweet potatoes, and during that period, they are all, young or old, healthy and fat. It have very little doubt but it might be advantageously cultivated for the manufacture of sugar, which it would probably produce in greater abundance than the beet ; for not only sugar can be extracted from its ready formed saccharine matter, but also from the starch which it contains in great abundance. This is, at least, well worth the trial."]

PART II.**SELECTIONS.***Education of the Farmer.*

[FROM THE GENESSEE FARMER.]

MR. TUCKER.—There is one subject which I have long been considering, and which, it seems to me, commends itself to the serious and candid attention of every one with whom it is connected. It is the education of the farmer—that is, the whole training of the child from infancy to maturity, and the instruction preparatory to the duties of his calling.

I have perused the pages of the Farmer with pleasure, as they have from time to time given instruction upon the various branches of husbandry; but at the same time I have with equal regret observed the want of scarcely any instruction, or even advice, with reference to mental and moral culture. It may be thought by some, that the Farmer does not include these among the objects which it has in view. But, why does it not? Is not the subject of intellectual and moral improvement closely connected with the happiness of every person, whatever may be his calling in life? Are not its interests closely interwoven with the present and eternal welfare of every human being? Do not the exalted ends which it is calculated to gain, call loudly upon every one to give it a decided attention? Doubtless all will admit, that it is a subject of vital importance; but some may inquire, why you would introduce it into an agricultural publication. There is a satisfactory reason in my mind, why the subject of education should have a place in such a paper, *so far as it is in the least connected with the occupation of the patrons of that paper.* There, as it were, it will be detached by itself—it will stand out in a conspicuous situation, and will appeal home individually to all under whose notice it shall fall, disengaged of every thing of a similar nature, but which inclines to another profession. Our attention will be called to it separately, as connected with a particular pursuit, and many of the hindrances to success which must be encountered when the same subject is presented under different circumstances, will by this course be prevented. There is a peculiar fitness in having important subjects presented before our minds unaccompanied by any thing which is not coherent with the object in view. Look at our public schools and colleges. There is the same course of education prescribed for the lawyer, the physician, the schoolmaster, the farmer. It is true there are a great many things which ought to be learned in common, but is there not a peculiar fitness and propriety in having, at least in part, a separate course prescribed, whose whole bearing shall be directed towards the particular profession for which it was designed? The attention of

some men engaged in the cause of education, particularly of common school education, has of late been called to this interesting subject, (that of recommending a course of instruction adapted to the future wants of the learner,) and would that there were a deeper interest felt in its behalf throughout our land.

I wish through the columns of your paper, to throw out a few hints respecting the education of the farmer, not as feeling myself capable of doing justice to the subject, but hoping that it may awaken an interest in some one who will favour us with articles from an abler pen. I have heretofore noticed an occasional glance at it from the pen of some of your correspondents, but no person, with his eyes properly opened, will deny that the subject is very much neglected. It must pain the heart of every careful observer to see the lamentable deficiency in the qualifications of the farming community. I mean, the qualifications of the mind. Not but what we have a number of able men, men of talents, who are farmers, but there is a neglect, a deplorable neglect, existing generally throughout this class of people, in respect to their intellectual interests. It is not contended that the farmer should be liberally educated, in the strict sense of that phrase, in order properly to discharge the duties of his occupation, but that he should know more than just enough to plough and sow his fields, reap his crops, and make money, is folly in the extreme. (Yet it requires more knowledge to do even this as it ought to be done, than many imagine.) For what was mind given to man, if it was not to be trained and cultivated? Why were we made intellectual beings? The farmer, no more than any other person, should be debarred the pleasure to be taken from a well cultivated mind. Why should he remain in ignorance all his days, even of those very branches of knowledge which are so nearly connected with his occupation, such as chemistry, botany, geology, &c.? Is it because he does not need them, as the illiterate may pretend? The knowledge which they impart may be brought into constant practice every day in the year. When a farmer prepares a piece of ground to put in a crop, he ought to know whether the soil is congenial to that crop; he ought to learn previously of what the soil is formed, and what is the nature of the ingredients. Unless he have this knowledge, and know when and where to sow his crops, he will waste his efforts year after year in fruitless experiment. There are many of this last stamp, and they are the very men who cry out against education for the farmer. Wrapped up in their own conceit, they will not listen to the voice of instruction, and so live to the close of their lives, nearly, if not quite, as ignorant as when they commenced their course.

I apprehend, that the real condition of our farmers in regard to this subject is not very extensively known. Education is indeed in a low state among them—there are but few, in comparison with the great mass, who pay any attention to it. And here it may seem a query, why our farmers, as a class, are of no better information, considering the numerous advantages our country offers for the attainment of knowledge. Public schools have been brought to our very doors, and yet how many who are abundantly able, still turn from them. It is no privilege to them that knowledge is so cheap, and they seem to treat with perfect indifference this momentous subject. There is a reason for this inaction, and a lamentable one too. Hitherto a great mistake has prevailed on this subject. It was thought by our fathers, at least to a considerable extent, that a very deficient education would answer in

all cases for the farmer. It appeared to them, that the duties of his profession did not call for the exercise of the mind, and that therefore, the bestowment of time and money upon its cultivation was entirely thrown away. *They were taught to think so, and they taught their children to think so.* And hence we may account for the erroneous opinions which at the present day prevail upon this subject.

But the farmer has other and higher obligations resting upon him than the tilling of the ground. He has a mind to train, he has his offspring to teach, and he has public duties to perform. And should he not be prepared for all this? How can he, and be brought up in that neglected course which hundreds of able farmers are now taking with their children? We would ask them, ought not light to be thrown upon this subject? Ought not those who are slumbering on, in the utter neglect of their intellectual interests, taking no thought only for their bodies, to be waked up, that the mind may receive that attention which is its due, and experience that culture which will prepare the man for his duties in this life, that thus his *immortal part* may be fitted to shine with increasing splendour in that world beyond the grave?

It is not to be expected that a thorough illustration of the erroneous opinions which have gained prevalence on this subject can be effected instantaneously. They have long held dominion, and it will take some time to make people see the right way and walk in it.

We would not say that the cause of education among our farmers is generally declining; but we would say that little is doing, and the interest felt in the cause in some parts scarcely perceptibly increasing. The wants of our common schools as described by those who have gone through our country and made an examination into their condition, give a woful picture of the state of a certain class of inhabitants, and predict the evil consequences to the welfare of our Republic, if a renovation do not soon take place. Now, the farming class makes up the great body which sustains these schools. The children of this class are the ones that principally fill our district school-houses. And it need not be said, that the present course of instruction there given is very poorly calculated to qualify them for their future duties.

To show the benefits which a large portion of inhabitants receive from these schools, we will introduce one example. Here is a farmer who sends his children to a common school through the winter season. We will say nothing about the teacher's doing his duty. The father knows that at the usual hour in the morning his boys are prepared and sent off to school. He probably does not see them again till night, when they are fixing their skates, or mending their sled, intending to get permission to spend the evening in play. The next day they go through with the same routine of business, and the winter passes away without the father's knowing hardly what they have been studying. He may, perhaps inquire at the close of the school concerning their progress, and find that his children have made little or no advancement. Then he will complain bitterly of the teacher, and tell of the great pains he has taken to place in the hands of his children the means of education. "He even did not take them out of school all winter long, and here they are, at the expiration of four or five months' term, no better off than when they commenced." Now this is precisely the management of hundreds of parents,—they take no more interest in the school than this. What more could they expect of their children while they are so indifferent, and feel no more interested themselves?

We will now suppose that the same man, at the commencement of the school, had called his boys around him, and told them what he was going to do: "The hurrying time of the year is past, and the winter is about setting in. There is a long season of leisure before you. We have been making efforts for a good school, and we trust not in vain. Now I am going to send you as soon as it commences—you shall have just such books as you need, and you shall not be called away one single day. Moreover, my evenings, or a proportion of them, shall be devoted to your instruction, and I will spare no pains which can conduce to your advancement in your studies." And let them see that his heart is on their welfare and highest good, and that he feels interested in their prosperity, and that he seeks in good earnest the improvement of their minds. When they have come home from school in the evening, he will gather them around him, and have them tell him what they have learned during the day. He will ask such questions as he deems suited to the little circle, and give them the same privilege. He will then bring forward some appropriate reading-book that he has newly purchased, which is calculated to interest both the oldest and the youngest, and have them take turns in reading. Such an evening's entertainment cannot fail of being interesting to their youthful minds. And it will surprise the father to see with what alacrity and delight they will enter upon the next evening's duties. If he should pursue this course with his children, they would not, after school, be asking to go *a skating or sliding down hill*—they would love their own fire-sides and their books.

It is true, the teacher has *his* duties to perform, but after all, the great secret of a child's advancement in knowledge that only attends a district school, lies in the degree of interest the parent takes in his intellectual progress. Let the parent be indifferent to his prosperity, and the child will soon exhibit a spirit of negligence, which will be ruinous to every effort of improvement made on the part of the teacher. The child *should* be noticed and encouraged at home, and made to feel not only the importance of *going to school*, but the great necessity of the cultivation of the mind, and the improvement of the understanding, which may be done by the little familiar circles above spoken of. For it is very easy for children, when neglected in this great business by their parents, to acquire those habits of inattention and carelessness about the interests of the mind, which they can never outgrow.

When we shall look at the matter in its true light, and weigh all the important considerations with that interest which they justly demand, we shall see that a much better education is needed among the farming community than is now generally received. Whether or not husbandry has risen as near a state of perfection as it did in the old Roman times, we find but few who are able, like Cincinnatus, to hold the plough, or guide the affairs of the nation.

While we should not forget where the wealth of our nation lays, whence we have gained our present standing, and acquired such a name for *prosperity*, we should remember what great body of people must sustain this Republic in its onward march to power and influence; and nothing can more surely predict our fall and utter ruin, than a general prevalence of ignorance throughout the class of common people. The diffusion of useful knowledge among all classes in our nation, is certainly the greatest safeguard to our republican institutions. And where such a large portion of the population are farmers, who compose the most powerful and influential class of people in the

nation, in a political point of view, ought they not to take special pains to raise the standard of intellectual and moral worth among their ranks, to spread intelligence far and wide, until every person shall possess a degree of knowledge which will enable him to discharge the duties of his occupation with honor to himself and profit to his country?

We hope that the erroneous opinion that education is not needed to make the farmer, will soon be banished for ever from the earth, and that by the introduction of correct opinions, carried out in practice, the farmer's calling will become, as it may, the most honorable, and command the most respect of any in our land. The privileges of education are daily increasing, and the expense in procuring it lessening; and it is time that farmers should improve the opportunities they now have of giving their sons a proper education while in the season of youth. Youth is the time, and did we realize how many are now every day mourning over the misimprovement of this most important period of life, the perfect disregard of the voice of wisdom heard on every side of them, and the irrecoverable loss they have sustained, which will cause them grief and pain to the last hour of their lives, we might possibly be aroused to a sense of our duty.

Suppose here is a community of farmers who have taken pains to educate their children, and continually to place before them incentives to the road to knowledge and good morals, what a prosperous and promising society will soon be seen, whose influence, as far as it shall have any communication, will be of that salutary kind which a right education always exerts.

A little time and money properly spent in the intellectual improvement of a lovely boy, between the ages of twelve and sixteen, are *not* lost. He is then in the "vigor of youth," possessed of activity of mind, and if he is directed in the right course, will grow up to honour and respectability. And do parents think it irksome to pay this attention to the cultivation of his mind? No—it is a

"Delightful task, to rear the tender thought,
And teach the young idea how to shoot;
To pour the fresh instruction o'er the mind,
To breathe th' enlivening spirit, and to fix
The generous purpose in the glowing breast."

It will prepare him most admirably to prosecute the way to knowledge with ardour of mind and fervour of spirit in his future life. He will receive an impulse in his early days which will not be momentary and vanishing, but will increase with the lapse of time: and his virtues and prosperous course in after life will doubly compensate the father for the pains, time, and money, bestowed upon his education.

On the contrary, let the youth grow up neglecting and neglected, and the sorrowful course he is in danger of pursuing, which indeed we too often witness, can hardly be told by language. And even if he should make what is called a respectable man, he has acquired habits in his youthful period which, if he shall endeavour to correct, it will take years of maturity to wipe away.

There is one other point which may be deserving of notice. It is not an uncommon thing to hear a farmer telling, with great anticipation, what his sons are going to make. Now, we would ask, what portion of our farmers ever realize their expectations from their children? We are constrained to believe that there are but few; and why it is so is no hard mystery to solve. It is almost a wonder that parents are

not more frequently disappointed than they are. But most of the farming class are highly favoured in this respect by their situation. Were there no more restraints from the paths of folly and vice thrown around the quiet home of the farmer than around a great share of the youth of our large villages and cities, and those living upon canals, his humble dwelling would much oftener afford the tale of woe, to be rehearsed by thousands, and which would destroy the peace and happiness of parents, and bring down the gray hairs of the father with sorrow to the grave.

It may not be amiss likewise to notice here that frequent objection, that when a man is settled on a farm, he has no more time to attend to the interests of the mind. He must have nothing to trouble him but laying up property. The intellectual man must receive no more nourishment,—feed and take care of the body well, and keep an abundance laid up in store. But by whom is this objection made? It most always comes from those who have a manifest disinclination ever to touch a book. Of all men, the farmer certainly has the most complete command of his time—he is the most independent. He goes at no one's bidding. His leisure the year round is completely at his disposal; and were all his waste hours employed in reading, at the year's end he would find no small progress in intellectual improvement. The farmer's occupation is well calculated to give a respectable portion of time, which may be allotted to the cultivation of the mind, without being detrimental to his other interests. It is not to be expected, that through the busy season of the year he can be quite as much at liberty as he will be after the fall work is done. But then comes his leisure time, and during four months of the less hurrying part of the year, he may work from sunrise to sunset if he choose, and then have, upon an average, *three hours a day*, to be devoted to the improvement of the mind. And he can take his rest in due season, undisturbed by the exciting questions which harass the lawyer, or the fears of success which haunt the physician.

I have thus offered a few thoughts upon this subject, in a very superficial manner. It is hoped that henceforth it will not be entirely overlooked by the correspondents for the Farmer. It most deservedly claims a share of our attention, sustaining as it does a vital connection with the prosperity and respectability of the business of husbandry universally. And should we now and then be favoured with a little instruction or advice respecting it, I do not think we should be the losers by it. It is practical education the farmer wants, and that the farming community must have, or the business never will rise in importance.

X.

On Preventing the Attack of Insects, and Mildew, &c. on Wall and other Fruit-Trees.

[FROM PAXTON'S LONDON HORTICULTURAL REGISTER.]

It is a very old proverb, that the prevention is better than the cure of a malady. This applies to the disorders of the vegetable, as well as to those of the animal kingdom. The former are liable to disease from predisposing causes, as well as the latter. Atmospheric influences affect both; and both require defences against attack, or the application of some remedy after the attack.

Plants are preyed on by insects, and by parasites of their own kind ; both disfigure and destroy the organization. Whatever the disease or enemy be, it is much more injurious in the early stages of the annual growth of trees than after the foliage and wood have gained a firmer consistence ; and therefore the earlier a preventive or remedy is applied, the more effectual it is likely to prove.

It is perfectly well known that the eggs of the insects which are such an annoyance in gardens during the spring and summer, are laid on, or very near the plants which yield their progeny food. These eggs are deposited in regular or irregular clusters on the bark, and particularly round the bases of the buds. When examined in this state, the eggs appear to be glued together and covered by some exudation from the parent, which at once conceals, secures, and preserves the little embryos till the warmth of the spring brings forth the tender leaves or flowers and the puny larvæ together. At first the larvæ of moths are very minute caterpillars, and soon as they have burst their investments instinctively crawl to the bursting bud, where they rest and feed. The little grey moth (*Yponomeuta padella*) is one of the smallest, but most numerous of its tribe. We have often had to regret the extensive damage committed by this tiny caterpillar, particularly on the foliage of nonpareil apple-trees in a sheltered orchard ; not a leaf escaped, and though the fruit were not preyed on, they were useless, having neither juice nor flavour. The economy of this insect has never been more minutely studied and described than by Mr. R. H. Lewis, in a late number of the *Transactions of the Entomological Society of London*. Mr. Lewis states that "the mother moth deposits her eggs generally on small twigs, and chiefly on their under surface, in a circular patch about a line and a half in diameter, which she covers with a strong gluten, at first of a pale yellow, but which is afterwards, by the action of the atmosphere and rain, changed to a dark brown, very closely resembling the bark of the tree, and is then very difficult to be distinguished from it. The eggs hatch early in autumn, and the larvæ remain in confinement during the whole winter, under the cover which is formed by the gluten and egg-shells. If one of these nests be opened it will be found hollow, and containing from twenty to thirty pale-coloured larvæ, with head and a spot on the shoulder black. In these receptacles they increase somewhat in size ; the bark of the tree beneath is moist and green, but whether they derive any nourishment from it the writer cannot tell. About the time the trees are coming into leaf they make their escape, but they do not now commence spinning webs ; they cannot then eat the epidermis of the leaves, and they require some protection from the cold and rain, which their tender frames are not yet fitted to endure ; to effect which they mine into the leaves, eating the parenchyma only, and leaving the cuticle untouched. Having acquired sufficient strength to bear the changes of weather, and eat every part of the leaves, they make their way out ; and the anxious gardener who has hitherto only observed the brownness of the leaves caused by the mining, but which is attributed to the blasting effects of an easterly wind, is astounded to see myriads of caterpillars swarming on the trees, disleafing every branch as they proceed. The fact of their mining sufficiently explains the reason of their sudden appearance ; it shows how, in one day, not a single caterpillar may be visible on the trees, and the next they may be swarming with larvæ of so large a size as to rebut the idea of their having been recently hatched. Besides, their latter habit of feeding on

the leaves externally is so little like their former one of feeding on them internally, that any one who has not satisfied himself by examination that both habits are proper to the same caterpillars, would scarcely suppose this to be the case. While the caterpillars are within the leaves they are of a yellowish colour, though they become darker at each change of the skin. It is in this state that Mr. Lewis advises their destruction by gathering and burning every leaf which shows their internal depredations. Their nests are so difficult to discover, that searching for them seems out of the question; and if a wash strong enough to dissolve their glutinous covering were applied, it would probably at the same time injure the tree. Having eaten their fill, they prepare for the pupa state, by spinning strong cocoons of a long oval shape. In a short time they come forth, in their perfect winged form, and may be seen on mornings and evenings flying in great numbers round the devoted trees which are in the following year to be the scene of similar ravages, unless circumstances for which we cannot account should prevent their multiplication."

This same little moth is also partial to the foliage of the hawthorn: whole hedges may be often seen stripped of leaves, and covered by the webs of the caterpillars. The same, or other sorts of larvæ mine the leaves of the lilac, cow-parsnep, and several other plants.

I have thought well to transcribe the principal part of Mr. Lewis's paper, not only because it is a very satisfactory account of the *Yponomeuta padella*, but because it conveys an excellent idea of the breeding and various transformations of moths in general: I would further observe, that his mode of destruction, though effectual as far as it goes, strikes me as impracticable. To gather every infected leaf would be a tedious business, except only on very small trees, which happen to be under both the eye and hand. But it is worth consideration whether or not it be possible to cover the fruit trees on which the insects lay their eggs by some liquid which would offend and drive them from the garden and orchard into the fields, where they do but little harm. This liquid, whatever it may be, while it offends the mother moths, must not spoil or taint the fruit, because it should be applied while the insects are in their cocoons, and that is, when the fruit are on the trees, say in August or September. But all circumstances considered, perhaps the best time to assail this moth, and all other insects infesting fruit trees, is just before and at the time they begin to move in quest of food. If, at that time, the trees were thoroughly sprinkled, or repeatedly washed with some liquid which would either be fatal or offensive to the caterpillars, a check would be given on their first irruption, which, if it did not diminish their numbers, might drive them from their prey.

The aphides are one of the plagues of gardeners. These insects are viviparous in warm weather, and oviparous in cold. In the first, the nymphs come forth naked, in the second they are brought forth covered with a thin glutinous slough, which serves to attach them to the place where they are laid, and to shelter them during winter. In the spring they burst their thin covering, and creep to the summit of the shoot on which they passed the winter, there congregating to breed and feast on the juices of the plant. The aphis is doubly injurious, not only by extracting the juices, but by soiling the leaves, and especially the fruit, with honey-dew emitted by them.

Every gardener knows how to banish the green flies (*aphides*) after they appear, by fumigations of tobacco, either in frames, houses, or in

the open garden, with the assistance of a fumigating cloth; but preventing their choosing a plant to live and breed on is a desideratum among cultivators, and yet to be discovered. Perhaps the means of prevention are simple, and near at hand, did we but know them. Every decoction offensive to the human palate, has very probably been tried by one practitioner or another, but, as far as my knowledge goes, without success. There are two difficulties in the way: the first is, plants, in a state of growth, are ever producing new parts, grateful to the insects, however offensive the old parts may be; and, secondly, they are furnished with wings in one stage of their life, by which they can transport themselves whither they list. To overcome these difficulties requires a daily, or at least a very frequent application of the protective means—a laborious inconvenience quite impracticable. Still there is no doubt, but that if a tree could be made offensive to the mother flies in the autumn, but few aphides would present themselves in the spring.

The best, cheapest, and easiest procured liquid for defending and cleansing fruit-trees from insects is common soap-suds from the laundry. I have always used this waste water for all kinds of trees, whether on walls or standards, employing the force of the garden engine. The bitter of the alkaline principle, and the clogging effect of the greasy matter on the movements of minute insects, if not fatal, is certainly offensive to all kinds inhabiting walls or trees. Besides, the cleansing effect of such a liquid, thrown on with force gets rid not only of insects but many other impurities, and the trees always appear to be refreshed and invigorated by it. And it may easily be conceived, that stems and branches coated with the white curdlings of the soap, and the opening scales of the buds repeatedly filled by the same, must make the bark of the one, and the interior of the other very disagreeable retreats, whether for board or lodging. The only time in the season when such an application is unsuitable, will be during about six weeks before the fruit begins to ripen, as certainly no taint of the soap should remain on the fruit.

This application is available, useful, and even necessary on another account. It is a mortal enemy to the parasite fungus called mildew; and not only prevents the attack if timely applied, but kills the fungus, and recovers the wounded bark in a very short time. Some gardeners add a little of the flour of brimstone in the remedy for the cure of mildew—an useful addition, as it is equally destructive of this pernicious fungus.

Soap-suds is equally efficacious in banishing the little acarus, commonly called the red spider, so detrimental to fruit-trees and many other plants grown in a high temperature. In forcing-frames and houses they are a great pest, and are also met with on wall-trees in summer. They thrive and increase wonderfully in a dry atmosphere, and are greatly annoyed by moisture of any kind; and in some cases, when water or steam would be hurtful to certain plants, the acarus can only be banished by fumes of sulphur evolved from a strongly-heated flue or chafing-dish; but wherever water can be copiously and forcibly applied this little insect cannot thrive to be seriously hurtful.

It is well to know how the enemies of the gardener are to be met and vanquished; and when they do molest, it is necessary to check or destroy them: but it deserves the particular attention of every one engaged in the business to hit upon some plan of prevention rather than wait to perform a cure. Among your readers there are doubtless

many who are good entomologists; and who have, from the very nature of their business, the best opportunities of studying the economy of the insects which abound in gardens. Their economy once known, it may appear that in some one stage of their life they may easily be destroyed by some very simple means, but of which we are now ignorant, merely because we are not well enough acquainted with their habits and history.

SENEX.

April 10th, 1835.

Influence of Canals and Rail-Roads on Agriculture.

[FROM THE GENESEE FARMER.]

One of the most striking signs of the times in which we live, and that which will most probably leave the deepest impress to after ages, is the spirit of improvement which is showing itself in the construction of canals and rail roads. These improvements are felt in every part of our extended country, and in the impulse they give to every branch of commerce and industry; but it is with their influence on agriculture that we as farmers have principally to do. They furnish facilities to travel—they assist in the transportation of merchandize—and they enable the farmer to carry many things to a profitable market, which from their bulky or perishable nature, were formerly nearly worthless to him; and unless we are much mistaken, much of the agricultural prosperity we have enjoyed for a few years past, and the present high prices of real estate, may be traced to these sources.

Canals and rail-roads have an influence on the profits of agriculture during their construction, by withdrawing large numbers from the culture of the soil and employing them on such public works. Whatever may be the employment of men, they must be fed; and while the number of mouths remain the same, any reduction of the class of producers has a sensible tendency to increase their profits. There are at the present moment probably not less than 200,000 persons employed on such works of improvement, consuming annually a million and a half bushels of wheat, vast quantities of provisions, potatoes and other vegetables, independent of the immense demand for the coarser grains, suitable for horse feed, and for all which they are of course dependent on the agriculturist for a supply.

Improved means of communication profit agriculture materially, by lessening the cost of articles of prime necessity in farming, thus enabling him, with little additional labour, to greatly augment his productions. To illustrate this we may take the Erie canal, and the single article of plaster. From the Mohawk to the Niagara, the facilities of transporting the ground article are such, that in the few districts where it is not found, it may be purchased at such low rates as scarcely to form an obstacle to its general use. The easy acquisition of plaster has, by introducing the extensive use of clover in rotation with wheat, nearly doubled the capacity of the country for many miles on each side of it, for the staple commodity of our state, and millions of bushels are yearly produced, that but for plaster and clover would have no existence. Previous to the construction of the canal the price of salt furnished a serious drawback to the prosperity and profits of the farmer in our western counties. If he devoted his farm to raising cattle, salt was indispensable to their growth and health; if the dairy was his object, there was an additional demand for salt cre-

ated, which together sensibly reduced the aggregate profit of the farm. Already have our canals, by furnishing facilities for the removal and transportation of mineral manures, such as marl, plaster, &c., and the greater choice of markets they have offered, as well as in effect lessening the distances to such markets, benefitted the country beyond what the most sanguine once dared to hope. Real estate has increased in value fifty millions in consequence of this state of things, thus giving to agriculture a most stable foundation, in a success almost unexampled. "During a tour," says the celebrated Chaptal, "which I made with Napoleon in Belgium, I heard him express to one of the Council of a department, that he was surprised at the vast extent of waste land over which he had just travelled. He was answered thus: 'Give us a canal to transport our manures, and to convey away our products, and in five years this sterile country will be covered with crops.' The canal was afterwards constructed, and the promise realized in less than the required time."

Canals and rail-roads operate to the benefit of the farmer, by building up cities and villages all over the country, in which mechanics, merchants, and professional men congregate for the advantage of their respective callings, and where, as a matter of course, manufacturers usually establish themselves. Here those produce of the field and the garden, the whole tribe of culinary vegetables, and the produce of the fruit orchard, which formerly were nearly worthless, are now disposed of at a decent profit, an exchange beneficial to both, but which operates decidedly in increasing the sum total of the agriculturist's gain. The least observation on this point will show, that the influence of these improvements is here practically and beneficially exerted.

Perhaps the effects of canals and improved roads are seen most directly exercising their powerful agencies, where they bring into general use articles of the greatest value and of the first necessity, but which without them could never be got to market, or their production carried on to any considerable extent. We will endeavour to illustrate what we mean.

Before the construction of the Erie canal, the salt springs of Onondaga were of comparatively little value, from three to five hundred thousand bushels being made annually; the salt was wanted, but the cost of transportation was so great, that the least possible quantity was used. The canal was made, and the production has risen to two or three millions—the salt trade has been one of the most active causes in the growth of one of the most flourishing and prosperous villages of New-York, Syracuse,—and the important fact has been developed, that the state, in those springs, possesses a source of revenue which in an emergency may be made equal to the entire civil expenses of the state.

Not widely different are the facts with regard to the immense beds of sulphate of lime, or plaster, which almost line the canal from Madison to Niagara. Those extensive masses of beautiful stone produced from the celebrated Onondaga limestone quarries; and that important product, water lime, so abundant in the same region, so useful in most public works, which has heretofore been imported from abroad at such an expense, and for which the demand is constantly increasing, may almost be said to owe their origin, certainly their working, to the same cause.

1800 tons of grindstones are imported into the United States annually from Nova-Scotia, for which about twenty dollars per ton is paid.

A large proportion of these come to New-York. Now it is well known that the southern tier of counties in this state have, in several places, deposits of sandstone nearly or quite equal in grit to those imported, but situated in such secluded districts as to be little worked, and consequently nearly worthless. One of these deposits, in the county of Allegany, we have examined, and this alone would be abundantly able, if worked, to supply every demand that could be made. As it lies near the route of the Rochester and Olean canal, if that work is completed, it is probable it will soon be more extensively wrought, and there can be no doubt that twenty thousand dollars expended in that section annually in the purchase of grindstones, would materially benefit the agriculturists in the vicinity.

The great coal field of Pennsylvania occupies almost the whole central tract north of the Schuylkill river, and between the Delaware and the Susquehanna. Though the coal was known to be of the first quality, and in inexhaustible quantities, the difficulties of penetrating the interior mountainous district to the beds were so great, that little of it was used, and the cities, where coal of necessity was extensively used, depended on precarious supplies from Liverpool or Richmond. With the exceptions of a few favoured sections, the agriculture of the Pennsylvania coal region was at the lowest ebb; the scattering inhabitants obtained but a bare subsistence, and large tracts of real estate might be purchased for a song. Stimulated by the example of New-York, the state set about the work of internal improvement in good earnest, and canals and rail roads have penetrated the interior in all directions. As elsewhere, where the experiment has been fairly made, the result has been astonishing. It has furnished additional proof that every dollar expended in works of permanent utility, and in developing the resources of the country, is felt with fourfold effect in the agricultural prosperity of the favoured region. As in the case of the Onondaga salt works, the extension of canals especially showed the capabilities of the districts penetrated by them, and the coal sold in the market quickly increased from tens to thousands of tons. In the Philadelphia market in 1820 there were 364 tons sold.

| | | | | | | |
|------|---|---|---|---|---|---------|
| 1825 | - | - | - | - | - | 35,536 |
| 1830 | - | - | - | - | - | 192,934 |
| 1835 | - | - | - | - | - | 680,750 |

The value of the coal now sold is not short of five millions of dollars a year, and the increase in the value of real estate and agricultural prosperity has been in a ratio scarcely less rapid. It is true that in some of the instances we have mentioned, the connection between them and agriculture is not so plain, as between plaster or manure, and the operations of the farmer; still, their influence on his prosperity is not the less marked or decisive.

That such public works as are now progressing in the country *may* become a curse few will deny, and where they are constructed by companies, the charter conferring such powers cannot be too strictly guarded. In all cases, the state should reserve the right of resuming the control, should oppression of the public, or malpractice in any way, require the act. Thus far, however, the influence of canals and rail-roads has been excellent, and no where has this influence been more marked than in our agricultural districts. The price of freedom is eternal vigilance, and incorporated companies must ever be made to feel that they are the servants, not the masters.

Art of Removing Stains from Cloth.

[FROM THE NEW-ENGLAND FARMER.]

The art requires, first, a knowledge of the different substances producing stains. Secondly, of those substances by which stains may be removed. And, thirdly, a knowledge of the original colouring matter of the article, of the action of the substance upon it, and upon the stuff, and of those substances which will re-establish the faded colour.

1. Among the most common stains are those of grease and oils generally, acids, alkalies, iron, rust, sweet fruits, &c. Some of these, such as grease spots and stains of fruit, are easily known: while some of the others are more difficult to be distinguished. These difficulties are, however, often in a great measure overcome by observing the changes which are effected in the colour of the stuff. Acids, for instance, are generally thus known:—They reddens black, brown; and violet dyes and all blue colours, except Prussian blue and Indigo. Yellow colours are generally rendered paler by them, except the colour of annatto, which becomes orange.

Alkalies generally cause red colours to become violet, and blue to become green. Green woollen cloth is changed by them to yellow, yellow to brown, and annatto to a lively red.

Sweat consists principally of water, with a small quantity of muriate of soda, and acetic acid; it therefore produces nearly the same effects as the acids generally.

2. Grease and oil spots are removed by alkalies, soap, yolk of eggs, or by essential oils dissolved in alcohol. The most effectual mode of removing grease spots from coarse articles, or those where the colour will not be injured by it, is by a solution of pearlash. In the finer stuffs, ammonia is preferable, as it rapidly volatizes, and is less likely to injure the colour. Grease spots on coloured silk are removed by putting chalk dust upon them, and suffering it to remain a few hours, until it has absorbed the grease. Oils and grease which volatize at a temperature sufficiently low, may be expelled by applying heat.

Stains of acids are destroyed by alkalies and by acids. Caution is necessary in applying them, to use no greater quantity than is sufficient to neutralize the staining substance, as too great a quantity might produce an opposite evil. They must therefore, be applied gradually, and in small quantities at a time. For the same reason, ammonia is found best for removing acids, and the vegetable acids are the best for removing alkalies, as their action is more mild, and consequently there is less danger of their injuring the texture of the cloth.

Oxide or rust of iron, common ink spots, are removed by a solution of oxalic acid. It dissolves the iron, without injuring in the least the texture of the stuff, and the yellow oxalate of iron which is thus produced, and which is soluble, is readily removed by washing or soaking in water. Ink spots, (tanno gallate of iron,) upon the leaves of printed books, engravings, prints, may be removed, as the acid has no action on the printer's ink, which is coloured with lamp black. Where ink spots have been fresh, we have succeeded in restoring the paper, in a very few minutes, almost to its original whiteness, with perfect ease by applying oxalic acid, and by subsequent washing, while not the slightest change was observed in the marks of the print. Old ink spots, and especially those of very black ink are more difficult to remove. Stains

of fruit on white stuffs, are readily removed by a diluted solution of chlorine or of sulphuric acid. Sulphurous acid, is perhaps still better, being less liable to injure the cloth: to apply it, the cloth is simply moistened, and exposed to the vapour of the burning sulphur. Where it is practicable to use chlorine in a gaseous state, it is preferable to a solution, there being less danger of injuring the cloth. Compound spots are more difficult to remove, and they require different applications according to the respective natures of the component parts of the substances causing the stain. Thus, for instance, grease from a wheel work requires first that the grease should be dissolved by an alkali, and then the iron is removed by oxalic acid.

3. Where the stuffs are not white, but have been colored by dyes, those substances should be employed to remove the stain, which will not change the colour of the dye. Or, if this cannot be done, and the substance applied alters the colour, a knowledge of those substances is necessary, which will re-establish the colour. If, for instance, an alkali has been employed to remove an acid from a violet blue or red cloth, and a yellow spot remains, a solution of sulphate of iron or copperas must be used. Or where spots of ink or iron would have been removed by oxalic acid, the colour may be restored by an alkali or solution of tin. This branch of our subject is too extensive for our present limits, and those who wish to pursue the subject, we refer them to works on dyeing, and that department of chemistry which relates to it.

On Transplanting.

[FROM THE WESTERN FARMER.]

There is no operation more important to the agriculturist than that of planting out fruit trees; because, if properly performed, the benefits of the operation are for himself and for his posterity. Hence the damage of introducing improper practices, founded upon unsound principles, in planting.

Having observed in your November number of the Western Farmer, some "Notes on Transplanting," copied from the New-York Farmer, recommending the planting out of trees without lopping off any part of the top or branches—and apprehending that the reasoning in favour of that practice is incorrect, and *might* mislead, to their injury, the confiding and inexperienced, I beg leave to offer a few observations on the subject.

The author of those "Notes," it appears to me, reasons badly, when he draws an argument in favour of his new theory, from the fact of the greater success in planting a young tree "with its limbs and roots entire," than "the larger one with the system of decapitation practised upon it." He infers that the difference arises from the amputation of the branches—whereas it proceeds from the greater loss of the roots, in digging up the larger than the young tree. In removing a young plant, it is quite practicable to retain a much larger proportion of the extremities of the small fibrous roots, adapted to the introversion of the plant, than of a large tree. There can be no doubt that the roots are more essentially the life-sustaining members of plants than the branches—therefore, when a tree (small or great) is removed, the chance of its living depends more upon retaining a due proportion of its most essential members.

The soundness of theories may sometimes be tested by pushing the principles on which they rest to their extremes. Let us see whether the theory here controverted can stand this test.—Plant a young tree with its branches and roots entire. It will live—cut off a branch, it will live—cut off several, it will still live—nay, cut off the whole, leaving only the stem, and it will not only survive, as a thousand instances have proved, but being sustained by the roots, it will put out new branches and will flourish.

Plant another tree, with its branches and roots entire—try the same process of amputation on the roots, and ere you reach the last root, the branches will wither, and the tree will decline and die.

An argument in favour of the new theory is attempted to be founded on a supposed analogy between vegetable and animal life. “But, (says its author,) would any person in his senses think of cutting off a child’s arm because it had the misfortune to lose its foot?” Certainly the author of the notes, in this question, loses sight entirely of the supposed analogy. The foot of an animal is not constituted an organ to receive through its pores nourishment for the sustenance of the body, as the roots are of a tree. The stomach of an animal is this organ. Now, let us suppose the stomach to be wounded or impaired so as not to be able to perform adequately the functions of receiving, preparing, and furnishing the body a due proportion of food. What is the consequence? Why, by an invariable law of nature, the bulk of substance to be supported must be reduced. the body and limbs fall away and dwindle, sometimes almost to a skeleton. But when the stomach recovers its tone, and performs properly its functions, then the body and limbs begin to recover, and finally assume their wonted size and fulness. So when the roots of a tree have been reduced or impaired, to a degree which leaves them incapable of supplying adequate nourishment for the whole tree, body and limbs, the same law of nature ordains, that a portion of the substance to be supported, must be reduced—the limbs wither, dry, and decay: and who ever yet saw a dry dead twig, restored so as to vegetate.

As then, in the cases supposed, art is *incapable* of reducing the bulk of the animal, but nature is competent both to reduce and restore—as art is capable of reducing the bulk of the tree, leaving only as much as can be supported by the appendant root,—and as reduction, of the bulk to be supported, is indicated in both cases when the sustaining organs are impaired, it would seem that the analogy is clearly in favour of trimming off a portion of the limbs, so as to leave the top of the tree proportioned to the remaining root.

But further—is not this new theory entirely at war with the system of pruning? done for the double purpose of preserving the tree, and improving the fruit, a system which has stood the test of ages, and has the sanction of experience,—the best guide to young agriculturists.

But facts are the best arguments in these matters. About 30 years ago I transplanted a pear tree into my garden. It was seven inches through, dug up in December, in freezing weather. To save it, I trimmed off most of the top, so much as to admit of its being carried into a cellar to preserve it for the night from the frost. Next day it was carried a mile and planted. It is yet a good bearing tree. About ten years past I transplanted a bearing Junetting apple-tree more than half grown, cutting off most of the top. This year it bore the best and largest apples of any Junetting tree in my orchard.

Some four or five years past a neighbour of mine transplanted from the forest to his yard a very uncommon and beautiful tree, bearing berries—desirous of saving the top, he trimmed off none, and the tree died.

Such facts could be advanced without number.

S.

On the Study of Agriculture.

[FROM THE GENESEE FARMER.]

We select the following paragraphs from an Address delivered before the Middlesex (Mass.) Agricultural Society, by Albert H. Nelson, at its anniversary in October last. The New England Farmer says of this address—"Much as has before been written and said on the advantages, which practical Agriculture derives from science and Book Knowledge, we have seen nothing which more clearly, forcibly, and demonstratively inculcates the importance of the union of these two principal sources of modern improvements in husbandry."

There is an unwarrantable prejudice existant in the minds of most farmers against what they call "Book farming." When mentioned, a smile is excited; when one is bold enough to avow his determination to farm in that way, he is greeted with an open laugh. "Experience—experience—you must learn by experience, it is said. That alone is worth any thing; that alone will prevent you from failing, or will ensure you success. Your farm must be your book—and your ploughs, your hoes, and your teams, the letters by which you read out your lesson." Now, certainly, experience is not to be despised; it cannot be too highly praised. But it is put in opposition to scientific husbandry by those who argue in this way: and let us examine what this bugbear may be. We say that a man is a book farmer, when he takes books written on the subject of agriculture, and farms according to the principles, and performs the experiments, therein contained. Book farming then, is another name for the science of farming; it is an exact description of the art, written down in letters. It is the collected wisdom of the best cultivators of the earth: it is the noted result of experiment: the detail of theory confirmed. In a word, it is a history of the development of the principles of farming, from the first imperfect effort of ignorant and isolated means up to the present time. Now farming is a science, as much as is geometry; and it is a knowledge of its principles which makes a man a good farmer. A knowledge of these principles can only be obtained by experience, but this experience can be taught in books, and is so taught. So that, after all, we find that a scientific, or book farmer does practice on experience: save that he takes the experience of the whole world, through all time, instead of taking that of his immediate neighbour: and instead, untaught and ignorant, of his own.

We may learn the principles of farming, then, by study, and why in the name of common sense may we not study books? Why should we be obliged to grope along, to stumble on in the thick darkness which our ancestors have exerted themselves successfully to dissipate, when we may walk firmly and surely, would we but open our eyes. To illustrate my meaning. A young man comes into the possession of a farm composed entirely of light sandy soil. His predecessors have, from year to year raised, by dint of much labour, a small crop of burnt

up hay, a small crop of potatoes, and smaller crop of stinted corn. Now shall he toil on all his days, ploughing, sowing and cropping the same fields, in the same way, and with the same results, as did his ancestors? Or would it not be far better for him to farm a little by book? To study the nature of calcareous and silicious soils, to learn the different effects and qualitie of manures, to introducet he turnip and clover culture, and a rotation of crops; and thus by the aid of a little science, double his produce and the value of his land at the same time? Shall he continue to cultivate certain articles without any regard to their adaptation to his soil, or shall he study the nature of the soil somewhat? Can there be a doubt as to what should be done? Our fathers work with their eyes wide open, I allow. They adopt improvements as fast as they are made in their neighbourhood, so that they can see them: but they adopt *only* when they can *see* them. New modes of cultivation, and new articles of culture, are in this way gradually introduced. But they are introduced too slowly. The work does not go on fast enough. They do not keep up with the improvements of the age. There is much hesitation and doubt, after the time for hesitation and doubt has passed. The good old way, with all its imperfections, is adhered to in preference to a newer and better, merely because the one is old, and the other new. Our farmers have a thorough contempt for any new things, and especially if promulgated by a book farmer, and in this way loose great advantages. Illustrations of this fact are abundant. How much writing, and argument, and persuasion it has cost to obtain for the cultivation of the mulberry, and the making of silk, their present, partial, and limited confidence. How slowly has the cultivation of Ruta Baga been progressed: and how much more slowly the raising of Lucerne. How hard it is for people to give up keeping a little mountain of soil around each hill of corn; how hard to use the roller and cultivator; how hard to give up cross ploughing! or to illustrate this same feeling in a different way, it was forty years after Spinach was introduced into the gardens of the opulent, before it could be bought in Boston market; and I doubt not but that there are those present who now hear its name for the first time. The Rhubarb was twenty years in coming into favor: the Tomato, the best of all summer vegetables, nearly as long; and the Salsify is now hardly a regular marketable vegetable. While the Sea Kale of Great Britain has not been able to tempt a single cultivator, Head Lettuce as well known as it is, is seldom raised in the country, and the Cauliflower more seldom still. "But the disgrace of being slow to receive valuable novelties, is not confined to our farmers and gardeners alone. The Medical Faculty of Paris, proscribed as poisonous the potato, one hundred years after that plant had raised millions of vigorous troops who under Marlborough had again beaten the finest armies of France.

I know that prejudices may arise; that many false speculations will be indulged, and false theories promulgated. But these are evils which are incident to a free examination of this or any subject. Certainly this can be no reason for our rejecting the aid of science altogether, or for abandoning all inquiry. We are not to take every thing we find in a book which pretends to treat of any matter scientifically as entirely true. We must investigate and we must study. Practical skill alone may be sufficient for the ordinary business of the farmer; but it is not sufficient to enable him to avail himself of all the advantages which his situation may present. To enable him to rise above every obstacle which chance may throw in his way, and to prepare

him for untried difficulties, experience and speculation must be considered. Every important fact cannot be discovered by experience alone. Many important facts lie hidden and concealed, and require the aid of science to detect them. There are certain things easily discovered; certain axioms that every one knows. The light of science is not wanted to tell us of common things; that our land must be kept rich and free from noxious weeds, and that men do not gather grapes from thorns or figs from thistles. But the different qualities of soils—the different qualities of manures, and advantages and disadvantages of different crops, and different modes of cultivation, these cannot be perfectly understood, save by the light of science; save by study; and acquainting ourselves with all the improvements that are made and making.

To say that our farmers are opposed to a regular study of the science of agriculture, because they dislike mental labour, would be libellous.—Their whole course of life disproves such an assertion. Every thing but this they study, and with their whole soul and strength. This subject alone, anomalous as it may seem, they do not study: they are content to trudge on in the timeworn footsteps of their ancestors, in comparative ignorance of the very matter which most concerns them. One would think that a man who earns his bread by tilling the soil, would wish to know something of that soil. Dependent on the produce of the earth, one would think that he would wish to know how to get the most of it, and would institute experiments to that end. One would think that in these days, when the farmer is asking the use and nature and philosophy of every thing above, and on, and below the earth, he would sometimes ask the nature and use and philosophy of the earth itself. But is this the case to any considerable degree? Put this man into any other business, and he will immediately seize his books, and try to make himself acquainted with all that has been written on that subject. Attention has been excited as to this matter, I know. Improvements have been made, and are making. The study has been commenced, as is evidenced by institutions like this, the anniversary of which we are now celebrating, and by the improved appearance of our farms. But the objection is, that the study is not general; that improvements do not go on fast enough. How few farmers there are that actually study the nature of soils and manures, and crops? How few make any improvements save those they see instituted by their nearest circle of neighbours? All such they are willing to make. Now I ask, and the question contains the gist of the whole matter, why a man may not as well learn from the results of his neighbours' experiments and science when stated in a book, as when seen on a farm? Extend this same principle. Great men, practical men, in every part of the world, and for many years, have investigated the subject of agriculture, and have written on it; their plans and experiments, as well successful as otherwise, have been noted: experiments have been properly instituted. Now if a farmer may learn from a book written by his neighbour, may he not much more learn from this collected wisdom of the whole world? Do not men learn in this way? Is it not a fact, and may we not point to shining examples from the members of this society, that those who have studied books and become book farmers, are the best farmers, and have the best and most productive farms? Being willing to learn from those men, as we all are, and thus from books second hand, and why are we not willing to go ourselves to the fountain head, and thus become pioneers in the cause?

Some account of the Genus Bos, or Ox.

[FROM THE BRITISH CYCLOPÆDIA.]

The Ox is a genus of ruminant mammalia, which is generally distributed over the globe, in one or other of its species, and altogether, perhaps, the most useful to man in the whole range of animated nature; and, for that reason, one, the knowledge of which, is peculiarly valuable.

The characters of the genus have their average, or typical representation in the common ox, with which every one is familiar. The skull, in all the species, is strong in the anterior and upper part, with the front convex, flat, or concave; the horns are circular in their section, but variously formed, and of different sizes in the different species. They are produced upon cores of bone, which are always more or less porous, and said in some of the races, to communicate with the nostrils, through duplicates of the frontal bones. The true horn consists of a sheath produced upon the core, which receives a new layer on the inside every year. It is naturally smooth, but as the animals advance in size, the marking of the different layers, towards the root of the horn, give it a slightly annulated appearance. The horn is produced from the epidermis of the forehead, and not from the core; only the last produced layer is attached to the epidermis; and if the horn is accidentally broken off, it is not reproduced. The muzzle is broad and square, and usually of a black colour; but the colour of the tongue and inside of the mouth varies. Most of the species are gregarious, and some of them congregate in large herds. When the passions of the males are excited, their eyes have a glaring and fiery lustre; and their passions are apt to be excited by circumstances which do not affect other animals. Blood spilt on the ground excites them very much, and so does any thing which is of a red and glaring colour. The young of all the species may be, to a certain extent, tamed; and some of them will even follow the hunters by whom the dams have been killed, but the males of none of them can be said to be reduced to a state of great obedience, especially at that season when they are under sexual influence.

Generally speaking, they are inhabitants of the plains, and of plains where vegetation is moderately rich; and as they are heavier in the body, they are less fleet and discursive than the other ruminantia. They subsist chiefly upon green vegetable matter; the grasses, some leguminous plants, and the leaves of some deciduous trees. Their mode of eating differs from that of all other grazing animals. They do not nibble, but bite rather slowly; and as their upper lip is not prehensile, they use a peculiar licking motion with the tongue, to gather in the grass, which is divided by the teeth. Though there are considerable differences of appearance, habit, and geographical locality, in the various groups and species of which the genus is composed, it is understood that all, or nearly all, may be made to intermix in breeding.

The domesticated ones are remarkably yielding to circumstances, and readily take a very distinctly marked character, from differences of climate, pasture, and treatment. This plastic nature is of great advantage to those by whom they are reared, as it enables them, by crossing the breed of one place with that of another, to improve any

L. of C.

L. of C.

particular quality that they may desire, such as size and strength, if they are intended for labour; superior quantity or quality of milk, if for the dairy; and facility of fattening, and flavour of flesh, if intended for food.

With the exception of a species of bison, there is no evidence of any of the genus having at any period inhabited the American continent; and there are no vestiges even of that species in South America. This, however, is not owing to any want of adaptation in the climate, or the spontaneous productions of that country, but to the habits of the animals; for those introduced by the European colonists have multiplied to an extent unknown in any part of the world, so much so, indeed, that they are often captured for the skins only, and the flesh left to feed the vultures.

On the eastern continent, the native races, in the wild state, have, in all probability, very much declined, though, from the confusion which long prevailed, of one group with another, their progressive history is not the most satisfactory. Fossil bones of all the groups, are, however, met with, and some of them in deposits which we must suppose to have been formed long before the existence of any historic records of the places where they are found. Besides the bison, as already noticed, the groups are the common ox and the buffalo.

The Ox Group.—Of all the genus, these have been the most celebrated; and they are, in all probability, the first animals which man brought into a state of domestication. They are understood to have been originally natives of the middle latitudes, the plains by those rivers of central Asia, the banks of which are now, in many places, encroached upon by the deserts. This original locality of the group is inferred from its favourite pastures, rather than from any peculiar climatal adaptation; for, in consequence of that obedience to climate to which allusion has been made, the ox can bear a greater range of latitude than most animals; and it thrives as well in those which are high, and also in places, such as Australia, where there is not a vestige of any of the genus ever being native, as in the places where the bones are found in fossil state. It would be in vain, however, to attempt tracing the history of this animal, or attempting to determine the native locality of the race from which civilized nations originally derived that species which is now, and has from time immemorial been, of so much value to them.

Nothing tends more forcibly to prove the early period at which the ox was appropriated by man, and the advantage derived from the appropriation, than the association of that animal with religious rites and astronomical allusions. That the bull was the object of direct worship among the ancient Egyptians, and that it continues to be so at this day among the Hindoos, is well known. It had also large typical honours among the Greeks and Romans; and even with the Jews, under the Mosaic ritual, this animal was the most costly sacrifice. There are traces of very high regard for these animals among all the nations of the eastern continent; and among some of them the names of cow and calf are the terms of fondest endearment which the people apply to each other. This would lead us to suppose that the domestication of the ox was, if not the cause, at least one of the earliest and most efficient means of civilization; and, if the expression may be allowed, there is a disposition to the society of man in the animals of this group, which is not so apparent in any other. The ox does not, it is true, voluntarily offer his neck to the yoke, and the female does not come

spontaneously to be milked; but the gregarious propensities of these animals, which are peculiarly strong, lead them to associate readily with almost any other animals, which have no disposition to offer them direct injury.

They are also much more constant to their localities than the lighter members of the order; and these are the very localities which are most enriching to man as a visitant, and a resident, and a cultivator. We have a remarkable instance of their superiority in this respect, in the contrast of the ranges necessary for cattle and sheep, in those parts of our own country which cannot be profitably brought under the plough, or which, at all events, have not been so brought. If the country is to be thrown profitably into sheep-walks, the cottages must be removed over a very considerable breadth, so that the sheep may have free range; and the sheep nibble the leaves of the shrubby plants as well as the grasses, and have a tendency to reduce the country to that bare and bleak state which suits best their own healthy condition. A moist climate, and humid soft soil, are also ill suited for these animals; as the water lodges in their fleeces, and makes them heavy and fatiguing to the animals, which heats them, and as the heat is carried rapidly off by the evaporation from the fleece, their strength is exhausted, and they are subject to diseases of the lungs. Their feet, too, from the comparative narrowness of the hoofs, sink deep into soft and boggy ground. This also fatigues them; and, besides, the moisture acts on the frogs of the hoofs, which are altogether, of less consistent structure than those of the ox tribe, and they are often seized with foot-rot, or mortification of the lower part of the foot; nor is it the weakly sheep which are subject to these casualties, but rather those which are in the best condition, and on that account the most apt to feel the weight of the rain in their coats, and to sink deep in soft ground.

The ox tribe do not range so widely in their daily feeding, and they are less disturbed by human habitations, or by the presence of other animals on the same pastures. Rains injure them but little, in comparison, as their coats throw off the water, so that it does not load and fatigue them as it does the others. Their feet are broader, in proportion to the weight of their bodies; their hoofs are of more compact and firm texture, and not liable to be injured by humid pastures. They are, indeed, partial to such places, as they prefer the grass when there is some moisture upon it; and, accordingly, their chief feeding times are in the morning and in the evening, and in the heat of the day they retreat to the shallow waters, and stand in these, chewing the cud with much apparent satisfaction. Sheep, on the other hand, continue to nibble all day long, but they are apt to suffer if they remain on their pastures after the dew of evening is formed.

The ox points out to man those places where it is most advantageous to settle, and begin the labour of cultivation, which may be considered the primary foundation of all improvement. It was probably, indeed, most likely, for this reason, that the bull found so honourable a place in the mythologies of all the civilized nations of antiquity, and in the sacrifices under the ceremonial law of the Jews, and for the same reason that he found a place, and the peculiar place which he holds, in the signs of the Zodiac; being there emblematical of settlement and culture.

There is another quality of the genus *bos*, and especially of this division of it (of which the domestic ox is the type), which must have

rendered it peculiarly advantageous to the human race, in their early migrations, and of which we have very remarkable proofs in those cases of extensive colonization of distant parts of the world by European settlers, which have taken place in more modern times. Of all animals, the ox is, next to man, the most plastic to climate, and hence domestic oxen are divided into more varieties or breeds than any other animals. If removed into the country of the bison, the ox acquires a shaggy and bison-like character ; and if, on the other hand, he be removed into the native country of the buffalo, he soon assumes the appearance of this last animal.

Whether the native stock of our domestic varieties still exists, or whether (as is most likely) these have accompanied civilization from the East, is a point which cannot be ascertained with any degree of satisfaction, as they contain enough of resemblance, and also of difference, to make the conclusion plausible either way. The wild, or original British, belongs to the living world only as a very doubtful, and, certainly, a contaminated remnant ; as, in the countries where it is said to be found, the domestic breeds were introduced before they were fenced in by inclosures, or any attention paid to the difference of breeds and their characters. We trust, however, to be able, in the course of our observations, to shew that the only variety of *urus*, or wild bull, of which there are specimens existing in an apparently wild state, is, in truth, nothing more than a small portion of a living and well known variety, which has been allowed to run wild under peculiar circumstances. Cuvier, with his usual sagacity, says nothing about this original race in his *Regne Animal* ; but as we have the popular writers against us, *totum armentum*, we must proceed cautiously, and guard our steps.

Of the wild ones there are, or rather there are said to have been, two varieties, if not three. One of larger dimensions is found only in a fossil state, though, if we can credit the accounts of the ancients, it appears to have been in existence about the time when the people of the then civilized world began to invade the forests of central Europe. It appears from the localities in which its remains are found, to have been the immediate neighbour of the bison, and it is possible that the one may have been confounded with the other.

There are black *uri* with white chins, and without the shaggy appendages of the bisons, mentioned at a later period of European history ; and these are said to have been smaller than the fossil *uri*, and with the horns differently formed. But no very great stress can be laid on such accounts. The antiquities of natural history are the most vague of all antiquities, though the whole is sufficiently tinged with that character. Somewhere, not very far from the place where the remaining bisons are still said to be found, is the locality assigned for these black wild cattle. But we ought to bear in mind, how man had chased man, and civilization dawned and set in these places, or their near vicinity, between the time when the Romans first established themselves on the Danube, and that at which these wild cattle are said to have been seen. Further, we should bear in mind that many (indeed most) of the adventurers by whom these creatures were invaded, were from the East, where they had lived wandering and nomadic lives, and subsisted, in great part, upon these cattle. From these circumstances, it is at least as likely that these had been the descendants of herds now domesticated, as that they were a native race in these localities.

The species of which there are the most recent alleged accounts as being in the wild state, is the white *urus*, or wild bull (*Urus Scoticus*); and even its history is sufficiently vague. Report says, that at one period of British history, and that not a very remote one, these animals ranged at large in the natural forests of the north of England and south of Scotland, though less is said of their appearance in the opposite end, or even in the centre of either country, where both climate and pasturage were at least as favourable for them. That there have been a few of them at scattered points since people began to observe, or at least to record their observations on natural history, cannot be doubted. But those remains of a supposed ancient race are found only in the parks of a few of the great proprietors, which are generally artificially fenced and planted: and none are said to have been observed even in the wildest woods, which, in a state of nature, and when these consist of deciduous copse-wood, and abound in grass of the most kindly description, form the most inviting for the proprietary cattle, which are most nearly in a state of nature. Now, that any part of the genus *bos*, which, in all its species, and in all other parts of the world, keeps aloof from the haunts of man, and fades before the progress of civilization, if not domesticated, and thus made part of the system, should be so wholly changed in one small locality, or rather in a few detached spots of that locality, as to have got into inclosed plantations, and to remain and breed there, and there only, while it has, from time immemorial, vanished from places more in accordance with the usual habits of the genus, is such an anomaly that it cannot be received upon the testimony of any tradition.

We do not, however, question the fact of its having been lately, or being still at the places in question; but the doubtful point, and one to establish the affirmation of which there is no satisfactory evidence, is, that it is native in those places. Analogy is against such a position: it is well known that deer in a native state were, up to a comparatively recent period, numerous in many of the wild woods of the island; but they are now thinned; that the artificial parks which contain deer, and even the hill forests, such as those of the Duke of Athol, between Blair and Badenoch, have been stocked by artificial means; and the remains of the red deer have taken up their final abode in the very wildest part of the island, the north western part of Invernesshire, where, from rough and interspersed marsh, the surface is peculiarly uninteresting to human travellers. These are as much natural fastnesses, though of a different character, as those in which the remainder of the bisons have taken up their final abode in central Europe. It is, therefore, unreasonable to conclude from analogy that, if there had been any actual remains of a wild breed of cattle in Britain, they would have been found in the wild plains, and not as ornamental stock in the parks of the great. There must, therefore, be "some mistake" about the white cattle, and the sooner it is removed the better.

That the colour of these animals is nearly entire (it is not wholly so, as they all have the muzzles* and the tips of the horns black, and those at Burton Constable have the tips of the ears and tail black also) is not a proof that they are an original race, which has never been broken into varieties by domestication; for when domesticated cattle, with broken colours, continue for some generations exposed to the weather all the year round, they return to an entire, varying in a number of shades, from black to dun:† and hence the cattle which are bred in

* The muzzles are not all black. Con.

† This appears an equally unfounded assumption. Con.

the Scotch highlands have the colour generally unbroken, black being the prevailing colour.

We may farther remark, that the usual accounts of these animals do not assert that they are aboriginal in the artificial parks, but that they were obtained much in the same way as were the estates on which they are found, namely, by royal grants, or sales of the estates belonging to ecclesiastical corporations at the reformation. These religious establishments employed many Italian monks, who introduced their own country's fruits and flowers, and no doubt introduced their own dairy breed of cattle also. This is a very natural supposition; nay, it is impossible not to suppose that they brought their own breed of cattle to stock their parks. This is placed beyond a doubt when it is considered that the cattle in the finer parts of Italy, particularly in the Vale of Arno, are white, and have been so since the time of the Romans, and remaining so at the present time. They are an excellent breed, and highly prized in the West Indies, where numbers of them have been sent. It is probable that all those breeds of cattle in this country which have much white on them have been obtained by cross breeds with those white Italians; and this is rendered the more probable by their being more delicate than those of a darker tint. This origin of the white cattle does not invalidate the ground of their being sometimes found in the woods as strays from marauders; for the religious houses were always favourite objects of attack by freebooters.

The remains of the pretended wild breed are of much smaller size than what may be considered the parent stock in the plains of Tuscany; but this, as well as the greater energy of character, can be very readily accounted for from their being exposed to the air all the year round in a severer climate. Breeding "in-and-in," in an upland district, where the woods were thin and the pasture bare, would, in no very long time, reduce the largest breed of cattle to the average stature of the natives, if they could be kept alive and in health till the change were brought about: and it is well known, that with equal feeding, small and exposed cattle are the most active and pugnacious.

After some further remarks, to show how improbable it is that the cattle at Burton Constable, and other places, are the aboriginal breed of this country, the writer proceeds to describe the *Brahminy* bull of India; the *Gayal*, and *Yak*, of the same country. The latter animal has the tail covered with long hair, like that of the horse, only the texture of the hair is much finer. These tails are in much request both in India and in the Turkish Empire. In the former they are used for fanning off the flies, and among the Turks they are used as insignia of rank.

The buffalo section of the ox genus is next adverted to, and as these differ much in size, the writer attributes this difference to the climate and pastures on which they are native. On hills, they are small; in rich vallies, on the east side of the Bay of Bengal, the buffalo is a large heavy animal; in muscular bulk and frame similar to the Hore-fords of this country; but much thicker skinned, and covered with a shaggy coat of coarse hair. Their flesh, too, is dark coloured, rank, and unpalatable. They are, however, useful, as beasts of draught or burden, or for treading the rice grounds into soft mud, before sowing: thus answering the purpose of the plough.

The next buffalo noticed is that of the of the Cape of Good Hope; a small, but powerful animal. It is not known that this species has ever been tamed; but, if practicable, he would be found a useful beast

of draught, as he is the most active and fleet of the whole genus. There must be a way of dealing with them so as to get the better of his violence, which, bold and daring as it is, is only an instinctive means of self-defence; but the experiment would, if practised upon the adult animal, be highly dangerous.

On the proper Tillage of Lands.—Rotation of Crops.

[FROM THE GENESEE FARMER.]

MR. TUCKER.—You ask, “Will not an Old Farmer favor us with some details of his experience?” I will cheerfully give you my views and opinions, the result of experience, on those branches of agricultural business that I have been most conversant with, but whether they will be of sufficient interest to occupy a space in your pages is questionable; when you receive them, however, they will be at your disposal.

In this paper I will state some of the effects resulting from different modes of managing land. I formerly cultivated a farm in New-England; the soil was naturally good; red loam a little inclining to sand, not differing materially from that of Western New-York, excepting there was no clay combined with the sand and loam—the surface, however, was very uneven and stony, which rendered the tillage difficult and laborious—the subsoil was hard and gravelly, as well as stony, yet open and porous, so that drought or excess of rain seldom produced any injurious effect; but, notwithstanding those natural advantages, some of which were peculiar, the prevalent mode of managing land at that period was such as to preclude to some extent the profits which might have been realized. The farmers generally selected those fields for ploughing which they thought the easiest to till, and ploughed them so constantly, and that without manuring, that they soon run down, and when so reduced as hardly to pay the expense of tilling, they were left to recruit without seeding down, and frequently produced little else than johnswort and running briars, or other noxious weeds. Their meadows and pastures also were designed to be permanent. The manure which accumulated, was, almost universally, carried on to the smoothest part of the meadow late in the fall, or forepart of winter, and left till spring and then spread as evenly as possible; but having undergone so many changes, and being so long exposed to the action of the sun and air, as well as rains, the action produced was not great. Some of the meadows, however, produced good crops, and they generally did better than the plough land, the nature of the soil being in some respects favourable to the growth of grass. In this way I proceeded a while, and it is needless to say, that I found it not very profitable. I often conversed with my neighbours about changing our mode of farming, and some were of opinion that it was best, and some made objections. Sometimes we almost resolved we would take a different course, and then something would be suggested to deter us. At length, however, we broke through, and began to seed down our worn-out fields with clover and herdsgrass, and to plough up our pastures, and in some instances our meadows; and in return found ourselves rewarded with good crops. In the meantime our old fields yielded more profits than when they were tilled, and recruited faster than when they lay idle. Thus it appears that an

important improvement has been made. From about this time, the farmers in that vicinity pretty generally adopted the rotation system, ploughing their fields for about three crops, then seeding with clover, and mowing or pasturing three or four years. The use of plaster also was introduced, and its good effects realized to some extent. After proceeding in this way for a few years, many farms were greatly improved in value; the land generally became fertile, producing in some instances sixty bushels of corn to the acre, where formerly scarcely twenty could be obtained. Grass and all kinds of crops, were much better than under the former mode of management, and the fact became thoroughly established, that land managed in this way, instead of depreciating, would improve in fertility, even without manure; and subsequent experience has confirmed me in the opinion, that soils, similar to the one I have described, will gradually improve without any other manure than what naturally accumulates on the land, by the following process:—Plough up a field that has been in to clover three years, and let it lie; sow it to wheat; when the wheat is taken off, plough it in the stubble in the fall, the earlier the better; plant to corn in the spring; as soon as the corn is fit, cut it up, which will generally be by the twentieth of September in ordinary seasons; then sow to wheat. It will need but one ploughing in the spring, seed down, and let it lie three years to pasture. Pursue this mode of cultivation as long as you please—there is no mistake—your land will grow better and better, and the crops richly reward your labour.

In this series of crops, I have mentioned wheat first, but it may be best on some fields to commence with a corn crop. Where there is a stiff sward, and no obstacle to prevent turning it over smooth, corn can be grown to good advantage on the sod, and the land left in excellent condition for a crop of oats or barley, to be followed with wheat; but when a clover field is ploughed up, it will generally be best to put on wheat first, because corn is not sure to succeed well immediately after clover, and also because in this way two crops of wheat may be obtained in the series instead of one. In this wheat-growing district, it is an object to raise as many wheat crops as possible, this being the staple commodity, and always in good demand, and less exhausting to land than most other green crops. This is one of the ways in which land may be improved continually, without manure. I do not say it is the only way, or the best. If you should publish this communication I may perhaps speak of other ways hereafter, and point out some of their advantages and disadvantages. As few farmers can obtain, (at least at present) sufficient manure to enrich all their lands, I deem it important that some self-improving system should be pointed out. If what has been suggested should induce some abler pen to undertake the task, I should be much obliged.

AN OLD FARMER.

Ontario co., December, 1836.

Breadstuff.

[FROM THE MAINE MECHANIC AND FARMER.]

About eight or ten years since, if we mistake not, many cargoes of wheat were shipped from the Kennebec, for other markets—at about the same time merchants and mechanics in this city received in payment for goods, large quantities of wheat and other grain—and only

six years since, one firm here sold to a Boston man over 50 barrels of white beans at less than one dollar a bushel. About the same time a trader in the interior of this county had on hand nearly ten thousand bushels of wheat and other grain, raised in this county. We say nothing now of the difference in the prices between the time of which we are speaking, and the present, but the immense quantities of flour and grain that have been imported here within the last few years, and the fact that for the last month or two, several hundred barrels of flour have been brought through the woods from Quebec to supply our lumbermen, and is now selling in the interior towns northwest of us, it becomes a question of some importance whether all this change results from the increased attention given to the lumbering business in this section, or whether we have actually raised less grain in proportion within the last ten years, than formerly. We are not in possession of facts sufficient to settle this question satisfactorily to our own mind, and would respectfully call on our friends to assist us in getting at a correct result.

If it be true, that farming has been abandoned, or neglected, for the lumbering business, as being more profitable, when the *stumpage* on timber was at a low rate, and grain at a low rate also—it may be well to inquire whether the reasons which then existed have not in fact been overcome or changed, and whether the fact that farming paid but a small profit when corn was only sixty cents a bushel, beans seventy-five cents, and wheat five shillings, has not changed also—when these articles bring more than double their former prices. If as many farmers in proportion to the rest of the community are as diligent and successfully engaged in raising grain as formerly, at the increased prices, they are doing a fair business; but if they are lumbering at a nominal profit, and paying it away for imported grain, it is time they should know it.

We shall not now attempt to decide these points, but should be glad to have some of our long-headed readers to furnish us their views on the subject.

Brief Hints for February.

[FROM THE GENESEE FARMER.]

During winter, cattle are very apt to suffer for want of water, as running streams are generally frozen, and they are mostly fed on dry fodder.

Cattle will drink several times a day, if the water is good and of easy access; proper provision should therefore be made for them.

Farmers will save a great deal of hay, especially in wet and muddy weather, if instead of spreading it upon the ground for them, to be trodden under foot, suitable racks are provided, so that none of it may be wasted.

As milk is very valuable in winter, great care should be taken that cows are now milked very clean. But as the operation is apt to be tedious in this season in consequence of the slowness with which it is given down, it is best, after having obtained what milk can be done easily at one milking, to pass round all the cows at the conclusion, and give them a second milking, being careful to drain them to the last drop.

Cows should not be dried up of their milk too soon before their time of having a calf—this care is especially requisite in case of young cows

which are milked for the first season; for when these are dried up too soon it is apt to cause a permanent shortening of their time of giving milk for each successive season. If they are the first season dried early in the fall, it is difficult to obtain much milk after that period in any year afterwards.

With careful milking, particularly the first year, and good keeping, cows may be able to give milk for almost any period required, even but a very short time before having a calf.

Farmers have differed with regard to the proper time of drying up cows; but this rule we believe to be nearly correct—if they are well fed and in good condition the milking may be continued until nearly the time of having calf; but if they are *not* in good condition, they should be dried a month or two before that period, in order to allow them to recover their health and strength.

During the present month, apple trees may be pruned to great advantage, provided there is mild weather to admit of it being done comfortably to the operator.

Trees which are neglected in this particular, become thick and crooked in their branches, produce poor and imperfect fruit, the smaller branches die, and the trees become old before their time.

This operation is commonly best performed with a hand-saw. Crooked and stunted side branches should be removed, so that those which remain may have an opportunity to grow freely, and that the light and air may be admitted through all parts. The top of the tree should be left of good shape, and the branches as nearly equidistant from each other in every part, as is easily practicable.

Too much pruning at a time is apt to check the growth of trees, and is therefore not good, but they should be pruned moderately each year.

In cutting off large branches, avoid as much as possible broad wounds; which is effected by cutting them off nearly at right angles, and by not cutting too closely. A stump or projection should at the same time be avoided.

As the stumps of large branches are apt to crack, admit water and rot, or breed insects, they should be covered with thick paint, or a coat of tar and brick dust.

During mild weather in this month, will also be a good time to prune hardy grape vines, if not already done. Many persons, having but few grapes, and those hardy, are apt to neglect them, and let them grow too thick; the quality of the fruit would be greatly improved if they were kept properly pruned, which would be but a few minutes' work.

By performing the operation now, the wounds would have time to dry and contract, and the sap-vessels to become closed before spring, and preclude the danger of bleeding.

The only care needed in this operation, is to cut off all the smaller and least thrifty branches, and the ends or the larger, so that the buds left may be those which are largest and most vigorous, and that they may have sufficient light and air for healthy growth.

As fruit trees are apt to be injured by mice whenever there are a few inches of snow to conceal them in their depredations,—especially if grass has been suffered to grow round the trees,—it will be proper, whenever snow falls, to tread it firmly about them, by which the evil may be prevented.

PART III.

MISCELLANEOUS INTELLIGENCE.

Geological Definitions.—*The Primitive Earths*, are four : clay, sand, lime and magnesia.

Clay, is called by geologists, alumina, alumine, or argillaceous earth.

Sand, is called silex, silicia, silicious earth, or earth of flints.

Lime, as it exists in the soil, is commonly called calcareous earth. The term calcareous is not properly applied to any soil, unless it will effervesce with acids. Each of these earths answers a determinate and specific purpose in the economy and growth of plants; and the perfection of soil lies in a mixture of the whole.

Basis of the whole. The primitive earths which enter into its composition.

Vegetable matter. All vegetable substances, in a decaying or rotting state.

Animal matter. All animal substances in a putrifying state.

Organic matter. A term applied both to animal and vegetable substances, in a putrifying state.

Vegetable mould. The earthy remains of vegetable substances, which have either grown and decayed on the soil, or have been conveyed thither in the progress of cultivation.

Loam, is a combination of vegetable mould with the primitive earths.

Marl, is a substance consisting of lime, with a small portion of clay, and sometimes of peat, with a marine sand and animal remains. It is useful as a manure, and is distinguished by *shell, clay and stone marl*.—*Genesee Farmer*.

Quick Work.—We were yesterday an eye witness to a specimen of despach, which, had it not fallen under our own inspection, we should have been sceptical in believing. It was the operation, at the Fair of the American Institute, of reducing wheat in straw, to baked bread in *ten minutes*. The process was as follows: Twelve bundles of straw were placed in a machine in the garden, which came out threshed in a minute and a half; the winnowing was effected in a minute; the grinding and bolting occupied a minute and a half; the dough was kneaded and the cakes formed in two minutes. The whole contents of the twelve bundles were placed in a kitchen range, and came out thoroughly baked in four minutes: making in the whole, ten minutes. The cakes were distributed around, and they only wanted the aid of a cooler, and a few pounds of Goshen butter to have been swallowed in another minute, without the aid of mastication.—*N. Y. Gaz.*

At Baltimore wheat has declined in consequence of the expected arrival of about a hundred thousand bushels on the way from Europe.

Mammoth Ox.—The mammoth Ox, Mass., raised and owned by Mr. Nathan Slade, of Somerset, was drove to this place on Wednesday last, and exhibited to hundreds of our citizens. He weighs twenty-nine hundred and two pounds. His dimensions we have not ascertained exactly—but he is supposed by good judges to measure from the nose to the rump not less than eleven feet and from three to six inches. He is finely proportioned every way—is the largest, fattest, and take him all in all, the finest looking ox we have ever seen.

By referring to Goodrich's Family Encyclopedia, published in 1835, where are given the weight and dimensions of many of the largest and heaviest cattle raised in Europe and America, we find but one, (Columbus) whose weight exceeds that of the Ox, Massachusetts—and that one by sixty pounds only. He is seven years old.

Mr. Slade ranks among our best and wealthiest farmers. He has obtained several premiums for fat cattle at different times—and the rearing of the present ox, is alike creditable to him, to the country and to the Commonwealth.—*New-England Farmer*.

Munificent Bequest.—The late John Lowell, Jr., Esq., of Boston, who died a few months ago near Bombay, left property to the amount of more than half a million of dollars. We learn by the Boston Gazette, that he has bequeathed one half of his property, to trustees, to be appropriated to found an Institution in Boston, for the purpose of the delivery of lectures on scientific subjects. With the exception of one or two private legacies we also learn that he has left the other half of his large fortune to be equally divided between a brother, a brother-in-law and a sister-in-law.

Copper Mine.—We understand that a copper mine in Bristol, in this county, has recently been opened, which affords some very rich and beautiful specimens of Ore, capable of yielding rising of 60 per cent. of Copper.—*Hartford Times*.

Great Yield.—A field of 15 acres of land, belonging to Mr. Peter Ackerman of Fishkill, Dutchess Co., New York, produced last season, 555 bushels of wheat, being 37 bushels to the acre, which brought \$833 15.

Flowers.—The terrestrial stars that bring down heaven to earth, and carry up our thoughts from earth to heaven: the poetry of the Creator, written in beauty and fragrance. “He who does not love flowers,” says Ludwig Tieg, a German writer, “has lost all fear and love of God.” Another German author defines woman as something between a flower and an angel.

Old Oak.—A large oak in the forest of Puenesse, sown under the name of Puenesse, at a little distance to the right of the great road to St. Lo, is supposed, by comparing various data, to be eight or nine hundred years old. In 1834 it measured thirty-six feet in circumference, just above the soil, and was about fifty-five high. The trunk is now hollow, and will hold from fourteen to fifteen persons.

James H. Holyer, of Newtown, L. I., has a bunch of onions containing one hundred, from seed sown this year, weighing 120 lbs.—Also, thirty bushels averaging one pound each, the whole raised on the farm of Benj. Denton, Esq. of the former place.

Apples are so plenty in New York, that good pippins are selling at thirty-seven cents a bushel in the city, and in the country it is impossible to gather them all.

Great Feat—A Mr. Walker of Doncaster, stacked in ten hours, 20 tons of hay.

Blackwood's Magazine holds forth that bricks are the most durable material for building.—Professor Silliman will laugh at the idea.

A bridge four thousand feet long is now erecting over the Susquehanna at Harrisburg, by the Cumberland Valley Rail Road Company. It has rough stone piers and a wooden superstructure.

The Fair Sex in olden time.—In the reign of Henry VIII. in England, Sir A. Fitzherbert, Judge of the Court of Common Pleas, wrote a treatise entitled The Book of Husbandry, from which the following is extracted: “It is a wife's occupation to wynowe all manner of cornes, to make malte, to washe and wrynge, to make heye, shewe corn [reap] and, in time of nede, to help her husbald to fill the mucke wayne or dung cart, drive the plough, to load heye, corne and such other. And to go or ride to the market, to sel butter, cheese, mylk, egges, chekyns, capons, hennes, pygges, gese, and all manner of cornes.” Very ungenteel employment for ladies!—*N. E. Farmer*.

Experiments.—There is no way of making improvements in farming, but by experiments. If the farmer is informed of, or has conceived a different and better method of culture, or management in any branch of his farming, he is to test the goodness of that method by experiments; and, if these prove successful he may congratulate himself on having performed an act which is serviceable to his country and honourable to himself.—*Farmer's Assistant*.

Silk.—The National Gazette of the 13th ult. has an ably written editorial article on the subject of British and American finance, in which we find the following bold though just assertion: Thirty years will make the silk of the United States a prodigious article of production, a staple second only to Cotton.—*Balt. Farmer*.

Dr.

SOUTH-CAROLINA CANAL AND RAIL ROAD COMPANY, December 31st, 1836.

Cr.

| To | State of South-Carolina, | \$ 100,000 0 | By Cash, | \$ 5,707 46 |
|---|--|----------------------|---|-------------------|
| " | Interest on State Loan, | 23,223 50 | " J. L. Ross, for Land purchased conditionally, | 1,000 00 |
| " | Bonds Payable, | 3,500 0 | " Robert Childs, | 93 75 |
| " | Loans from Individuals, | 23,512 42 | " McNicol and Davidson, | 1,100 84 |
| " | John Gordon, | 646 | Post Office Department, | 1,083 26 |
| " | W. C. Molyneux, | 5,829 43 | " David Wheelan, | 10 00 |
| " | Executors of W. C. Molyneux, | 942 17 | " Wm. Robertson, Jr., Agt. of Transportation, for Disbursement, | 2,553 78 |
| " | Wm. H. Bell, | 20 00 | " M. W. Baldwin, | 75 00 |
| " | Bills Payable, | 185,293 26 | " John King, Jr., Ch. Agent, for Balances due by Agents, | 14,434 32 |
| " | Arrears of Dividends, | 1,502 00 | " Amount due on sales of Lots at Aiken, | 2,929 30 |
| " | George Wildes & Co., London, | 33,774 05 | " Balance, | 390,082 97 |
| " | Individuals for articles furnished, as per Ledger, | 6,319 12 | | |
| " | Officers of the Company, for arrears of Salary, | 3,224 93 | | |
| " | Amount due on Pay-Rolls, | 10,251 91 | | |
| " | Amount due on Bills Passed, of which \$ 4.31 for embankment, | 20,075 67 | | |
| " | Amount due on Bond to Mrs. Belser, | 450 00 | | |
| " | Amount due on Interest on Loans, Bonds, &c. | 1,182 75 | | |
| | | 419,111 68 | | |
| | | 390,082 97 | | |
| To Balance, | | | | |
| The Debt of the Company, 31st December, 1836, | | \$ 390,082 97 | Amount of Debt brought forward. | |
| " " 30th June, | | 245,121 53 | From which deduct for Machinery bought in last 6 mo's. | \$ 11,620 76 |
| | | 144,961 44 | for Embankment, | 30,062 56 |
| | | | for alteration of the Plane, | 1,311 61 |
| | | | for Branch Road to Columbia, | 2,738 08 |
| | | | for new rail Iron, | 97,323 18 |
| | | | | 143,054 19 |
| | | | | |
| | | \$ 268,702 80 | Current Expenses for the last six months, | \$ 125,646 61 |

HENRY RAVENEL, Secretary and Treasurer.

Charleston, Dec. 31, 1836.

STATEMENT of the number of Passengers conveyed upon the Rail Road, the number of Bales of Cotton brought down upon it, to Charleston, with the amount received from Freight and Passage, from 1st July to 31st Dec. 1836.

PASSAGE. FREIGHT.

| | UP. | | | | DOWN. | | | | UP AND DOWN. | | | | UP & DOWN. | | | | TOTAL AMT. | | | | | | | | | | | | | |
|---|-------|--------|-------|-------|--------|--------|--------|--------|--------------|--------|-------|--------|------------|--------|-------|---------|------------|--------|-------|--------|-----------------|----------|-------|-------|--------|---------|-------|-----|-----|-----|
| | No. | Amount | Pass. | | No. | Amount | Pass. | | UP. | Amount | Pass. | | UP. | Amount | Pass. | | DOWN. | Amount | Pass. | | Freight & Pass. | Hamburg. | Aiken | Black | Mid-W. | Br. ch. | Way | £. | | |
| | | | Pass. | Pass. | | | Pass. | Pass. | | | Pass. | Pass. | | | Pass. | Pass. | | | Pass. | Pass. | | | | | | | | | | |
| JULY, | 972 | 2,349 | 25 | 1,879 | 4,903 | 39 | 2,851 | 7,252 | 64 | 5,346 | 59 | 7,061 | 12 | 6,052 | 71 | 13,305 | 35 | 265 | 37 | 5 | 2 | ... | ... | ... | ... | 309 | | | | |
| AUGUST, | 817 | 2,546 | 41 | 1,563 | 4,545 | 91 | 2,380 | 7,092 | 32 | 6,923 | 98 | 6,188 | 82 | 7,542 | 80 | 14,635 | 12 | 259 | 28 | ... | ... | ... | ... | ... | ... | ... | 287 | | | |
| SEPTEMBER, .. | 987 | 4,050 | 66 | 904 | 2,627 | 38 | 1,891 | 6,678 | 04 | 9,949 | 03 | 1,764 | 23 | 11,113 | 26 | 17,791 | 30 | 802 | 57 | 25 | 47 | 54 | 4 | ... | ... | ... | 989 | | | |
| OCTOBER, | 1,333 | 6,329 | 31 | 1,449 | 4,248 | 20 | 2,782 | 10,577 | 51 | 9,423 | 09 | 3,113 | 78 | 12,536 | 87 | 23,114 | 38 | 1,492 | 314 | 167 | 291 | 431 | 21 | 2,716 | ... | ... | ... | | | |
| NOVEMBER, | 1,499 | 5,451 | 34 | 1,795 | 5,086 | 23 | 3,294 | 10,537 | 57 | 9,186 | 75 | 7,807 | 52 | 16,984 | 27 | 27,531 | 84 | 3,005 | 1334 | 233 | 332 | 546 | ... | 5,450 | ... | ... | ... | | | |
| DECEMBER, .. | 1,892 | 5,840 | 69 | 2,115 | 4,600 | 49 | 4,007 | 10,441 | 18 | 8,599 | 52 | 6,000 | 28 | 14,599 | 80 | 25,040 | 98 | 1,896 | 1405 | 194 | 420 | 143 | 22 | 4,080 | ... | ... | ... | | | |
| Total, | 7,500 | 26,567 | 66 | 9,705 | 26,011 | 60 | 17,205 | 52,579 | 26 | 49,428 | 96 | 19,410 | 75 | 68,839 | 71 | 121,418 | 97 | 7,719 | 3175 | — | 624 | 1092 | 1174 | 47 | 13831 | ... | ... | ... | | |
| Monthly Average, | 1,250 | 4,427 | 94 | 1,617 | 4,335 | 27 | 2,867 | 8,763 | 21 | 8,238 | 16 | — | — | — | — | 3,235 | 12 | 11,473 | 28 | 20,236 | 49 | — | — | — | — | 8 | 2,305 | ... | ... | ... |
| Arrivals and Departures with Frt. & Passengers. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| JULY, | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| AUGUST, | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| SEPTEMBER, .. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| OCTOBER, | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| NOVEMBER, | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| DECEMBER, .. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Total, | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Monthly Average, | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Average number of Engines, running between Charleston and Aiken, 11
Aiken and Hamburg, 2

Number of BALES OF COTTON received in
Charleston from the different Stations on the
Rail Road, from July 1st to Dec. 31, 1836.

HENRY RAVENEL,

Sec'y & Treasurer So. Ca. & R. R. Company

CHARLESTON, S. C. Dec. 31, 1836.